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The final report on the 1967-68 design phase of the Elementary Teacher Education Development Program analyzes 71 unfunded proposals for teacher education models. (See ED 018 677 for funded models.) The report emphasizes the innovative and unique elements of the proposals, first through illustrating with proposal excerpts the nine required program components (Appendix D) and second through presenting eight edited and abbreviated models selected for their more inclusive coverage of components. Proposals were expected to detail theories and goals of teacher education in terms of desired teacher behaviors, a professional curriculum for prospective and inservice teachers, college faculty orientation, staff utilization, and followup and evaluative procedures including data management for continuous student diagnosis and program updating. A summary indicates commonalities and weaknesses in the unfunded models. The eight models selected for the second section were submitted by: State University College at Brockport, N.Y.; Stanford University; System Development Corporation; Temple University; George Peabody College for Teachers; University of Illinois; University of Tulsa; and University of Kentucky. A program introduction, statistical data on submissions, a 53-item bibliography, and a 145-item list of Office of Education, Bureau of Research documents on teacher education are included. (LP)

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FINAL REPORT
Project No. 8-8056
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ANALYSIS AND EVALUATION OF PLANS FOR COMPREHENSIVE ELEMENTARY TEACHER EDUCATION MODELS

William E. Engbretson

Temple University

Philadelphia, Pennsylvania

January, 1969

The research reported herein was performed pursuant to a grant with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

U.S. DEPARTMENT OF
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Office of Education
Bureau of Research

SP002268

PREFACE

During calendar years 1967 and 1968 the U. S. Office of Education Bureau of Research initiated a new Elementary Teacher Education Development Program which subsequently became known as the Comprehensive Undergraduate and Inservice Teacher Education Program for Elementary Teachers. The author of this report had the privilege of serving this program as a consultant for the planning phase in August, 1967, as a respondent to the basis questions about the planning of the program, as a field reader and member of the evaluation panel to recommend funding of the proposed models and, in cooperation with the American Association of Colleges for Teacher Education and Temple University, as principal investigator of the Bureau of Research project entitled Analysis and Evaluation of Plans for Comprehensive Elementary Teacher Education Models, O. E. contract number 8-8056.

Whatever value the historical and critical analysis has to the profession is due to the hundreds of persons who devoted time, thought and energy to the development of the proposed models. The author takes full responsibility for any inadequacies or inaccuracies within this report as well as for the judgments made herein. Able assistance has been rendered by Dean Paul W. Eberman of Temple University and Executive Secretary Edward Pomeroy of AACTE. Particular credit for assistance in analyzing proposals is due Dr. Howard Blake of Temple University.

Written permission has been received from all institutions and agencies concerned to edit, excerpt and quote from the originally submitted proposals.

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Analysis and Evaluation of Plans for Comprehensive Elementary Teacher Education Models

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SUMMARY

Purposes.

This study, OE Project No. 8-8056 entitled *Analysis and Evaluation of Plans for Comprehensive Elementary Teacher Education Models* was undertaken in order to subject to critical analysis the eighty proposals submitted in 1968 to the Bureau of Research in competition for the Design Phase of the Elementary Teacher Education Development Program. Special consideration was given to the seventy-one unfunded proposals for model development. The basic purpose was to identify the noteworthy aspects of each proposal and to present these aspects and selected models to the profession so that the values of the work and thought already accomplished would not be lost to the broader audience. In addition, general comparisons were made, similarities were identified and weaknesses were noted.

Procedures.

The following specific steps were taken:

1. Permission to edit, excerpt and reproduce was received from all concerned.
2. All proposals were re-read and analyzed by the author and his consultants after reviewing OE ratings.
3. Analyses were based on the nine program components in the Request for Proposals. Additional sub-component analyses were conducted.
4. Common and unique elements and strengths and weaknesses of the proposals were identified.
5. Excerpts were selected illustrating the nine program components and eight edited models were selected for inclusion.
6. Presentations of basic data, selected program components, illustrative models, and summary of commonalities and weaknesses were made to the profession by means of this Final Report, in speeches to the American Association of Colleges for Teacher Education School for Executives in August, 1968 (to be published), and to a regional meeting of OE, Bureau of Research in November, 1968 concerned with the feasibility phase of the program.

Findings.

1. Eighty proposals were submitted, nine were funded. The funded proposals tended to come from large, multi-purpose, research-oriented universities and one regional education research laboratory. The funded proposals were more comprehensive, specifically dealt with all nine program components, had recognizable uniquenesses, and contained basic rationales, theory and related research. The funded proposals were separately analyzed, edited and presented in a companion study by Dr. Nicholas Fattu of Indiana University.
2. Illustrative model proposals chosen for both uniquenesses and representativeness were edited and included from State University of New York College at Brockport, Stanford University, George Peabody College for Teachers, University of Kentucky, Temple University, University of Illinois, University of Tulsa and System Development Corporation.
3. Proposals stressed the definitions of teaching tasks and teaching behaviors to be learned based on analyses of weaknesses in current elementary teacher training programs and on analyses of actual elementary teaching today. Relatively few proposals proposed to develop their respective models on the bases of what elementary teaching should be like in the future.

4. Most proposals stressed heavy proposed use of audio visual or multisensory equipment and considerable attention was given to the use of programed learning, simulation laboratories, microteaching, computer uses in instruction and evaluation, and systems analyses and approaches to both individual trainees, training sequences, and total program component development. On the other hand, the author and his consultants felt that while systems analyses were presented, the proposals tended to lack apparent understanding of this program component.
5. As far as actual programs proposed were concerned, they were most frequently marked by stress upon individualized instruction featuring self-pacing, self-instruction, self-selection and self-evaluation all with the potential of cycling and re-cycling training sequences.
6. Abandonment of traditional course and time structures was frequently proposed.
7. Many proposals stressed early concrete experiences with children in a wide variety of settings ranging through tutorials, many types of observations, participation in small, medium and large groups, project teaching, student teaching and internships of varying types and lengths of time. Some proposals tended to shorten or eliminate student teaching as it is conducted today in favor of extended internships for one or two years culminating in a masters degree.
8. General agreement was found in presenting the need for many institutions and agencies to be involved in proposed programs. The team approach evolving from new definitions of roles of teachers, paraprofessionals and specialists was frequently proposed.
9. Despite the fact that the guidelines called for them, relatively few proposals dealt with the preparation of personnel for early childhood education or for work with "disadvantaged" children. Neither did many proposals deal extensively with in-service programs for faculty and the ultimate problems of training or retraining these teachers of prospective teachers. Additionally, while much was said about the involvement of students, academic specialists, public school, agency, and community personnel, there was relatively little noticeable involvement of these persons in the preparation of the proposals themselves.

I

HISTORY AND DEVELOPMENT OF PROGRAM

During 1967 U.S. Office of Education personnel showed increasing awareness of the need for directed improvements in the development of elementary teacher education. In-house documents were circulated and conferences were held delineating the need for new and improved models for preservice and in-service education of elementary teachers from preschool to eighth grade levels.

On August 2, 1967 a meeting of consultants and Office of Education personnel was held in Washington to discuss the proposed teacher education development program. The list of attendees is appended. At this meeting the rationale for large scale development activities and the thought related to the teacher education development program were discussed. Implicit in this discussion was the goal of large scale development work on both the improvement of elementary teacher education instruction and the improvement of the system producing elementary teachers. The Office of Planning, Programming and Budget in the U.S. Office of Education, holding responsibilities for long range developments, had concluded from a variety of sources that the following points undergirded the proposed program:

1. Directed improvements in education appeared to be a more productive use of Federal Funds than undirected improvements.
2. Not enough Office of Education money was being spent on development programs.
3. Not enough funds were being devoted to communication and dissemination of research findings whether they were generated by directed programs or by "laissez-faire" programs.
4. Not enough funds were available and limited authority was in prior existence to enable grants to be made to others than colleges and universities and state departments of education.
5. More flexible recent legislation can now support the training and development of almost any kind of education at any level in any manner.
6. Stress now is on planning for future large scale work and development of models for change in the educative process.
7. Much research is development initiated and oriented and has specific objectives to be sought in terms of information needed that we don't already have.
8. The realization that all of education is multi-leveled and multi-sophisticated.

After extensive discussion of the data and background for the rationale the following conclusions were derived:

1. More federal money doesn't necessarily improve the system of education of teachers.

2. Consistent evidence shows that the attititudinal influence of parents is a most important outside school factor in child learning and achievement; some factors of teacher characteristics do result in better achievement levels of students; most educational research does not deal with enough of these variables.

3. To make sense and be productive, funds must be used to influence a total school, or a total institution, or a network of schools and institutions, rather than to deal with too few variables in the education of the teacher.

4. A large scale instructional systems development program is needed to influence teacher education.

5. The program should be de-limited to the preschool-elementary teacher level and include both preservice and in-service components.

6. Stress should be placed on large scale elementary teacher producers.

7. Any proposals developed for the program should include a rationale, a viable theory, specified objectives, and evaluational components. In addition, concern should be directed to individualized instruction, simulation, self-study, the use of multisensory media, multiple approaches to the problem of educating elementary teachers, aspects of team teaching, realistic reality-testing laboratory experiences, built in development, demonstration and dissemination phases, built in systems and costs analyses, in-service education for all personnel conducting such programs, and the results should be transportable as models to other elementary teacher producing institutions. It was felt that since teachers have multiple competencies and multiple as well as sequential effects that proposals for such a program should be geared to how children learn and should also relate to how teachers aid the development of learning strategies and skills in children. It was further felt that associative designs should be stimulated which demonstrate linkages with public schools and community agencies, linkages with graduate schools for teacher educators, and linkages with teacher education preservice producers in addition to the input expected from education-related industrial and systems analysis corporations. It was assumed that the above elements could be implicit in certain kinds of models.

Finally, a planning, design and development phase calender was discussed. The final calender is appended. Later, submission and contract dates were changed.

9

Late in August, 1967 the Office of Education, Bureau of Research, generalizing upon the prior studies and the results of the consultant meeting, prepared a list of questions and the calender for the proposed program which were circulated rather widely in a request for considered responses. These questions and the delimintations assumed about the program are appended.

After due consideration the request for proposals was issued from the Office of Education October 16, 1967. This RFP set forth nine program components which became the outline for proposed models. In addition, institutions which expressed interest in proposing to plan and develop elementary models were sent a research in teacher education bibliography prepared by the Office of Education. These materials are appended.

By January 1, 1968 eighty proposals had been received. All the submitted proposals received in-house readings and the top seventeen were selected for consideration by field readers and the evaluation panel which met in Washington, D.C., February 5 and 6, 1968. Chairing the evaluation panel was Dr. David L. Rice, Dean of Indiana State University at Evansville, Indiana. Members were Dr. Robert Gagne, Professor of Education at the University of California,Berkeley, Dr. Russel P. Kropp, Professor of Education at Florida State University, Dr. Donald M. Medley of the Educational Testing Service, and the author. Over twenty proposed models were carefully considered and twelve, in three orders of priority, were recommended for funding. Of these, nine proposals were funded with the monies available to the Bureau of Research.

Subsequently, Dr. Nicholas Fattu, Professor of Education at Indiana University, Bloomington, Indiana on leave to the U.S. Office of Education Bureau of Research has completed a study of the nine funded models. This is complemented by the current project which undertook to re-analyze the seventy-one unfunded models.

Subsequent sections of this report deal with basic data on the unfunded models, analysis of the nine program components called for in the RFP, edited abbreviated versions of selected planning models that were not funded, and the critical summary of these models.

II

STATISTICAL DATA ON PROPOSALS SUBMITTED

Before discussing the basic data on the eighty proposals that were submitted, a few comments are in order. It must be realized that a majority of institutions and their elementary teacher education personnel were not apprised of this new program in advance of the request for proposals which was sent from the Office of Education to college and university presidents in October, 1967. Despite the fact that word of mouth flies about as swiftly among schools of education as it does among other academic units, and despite the fact that institutions and consortia maintaining officers dealing directly with federal governmental offices in Washington usually have advance notice of such new programs, the majority of teacher educators of the author's acquaintance were not fully aware of the program until sometime after the request for proposals had been sent out. Consequently, a number of institutions perhaps chose not to enter the competition because of heavy staff commitments already made for the fall term. However eighty proposals were submitted from thirty-four states and the District of Columbia. The following map shows the location of the originating agency or institution by state and by federal region. All federal regions were represented in the initial submissions.

Figure 1 shows the types of institutions that submitted the original eighty proposals. Fifty-six of the proposals came from state colleges and universities including state-related universities. Fourteen emanated from private and parochial institutions, two state departments entered the competition as did two regional laboratories, the American Federation of Teachers submitted a proposal, and four profit and non-profit making corporations not directly affiliated with colleges and universities submitted proposals.

The complete list of institutions by their Office of Education log number, name of proposed principal investigator, institution and location can be found in Appendix F. The state departments involved were located in Illinois and Vermont. The regional laboratories were the Northwest Regional Laboratory located in Oregon and the Upper Mid-west Regional Laboratory located in Minnesota. The non-higher education institution corporations submitting proposals were the American Institutes for Research, Systems Development Corporation, College Institute for Systems Development, Incorporated, and the Scruggs Company.

Despite the reference in the request for proposals to "coalitions of institutions producing large numbers of elementary teachers" less than twenty per cent of the proposals came from consortia or recommended the establishment of consortia or partnerships of institutions and other agencies. None the less, fifteen of the proposals did make such specifications including those from the two state departments of education and the two regional laboratories. The bulk of the proposals came from single institutions.

80 PROPOSALS FROM 34 STATES & D.C.

FEDERAL REGIONS

I-10 IV-8 VII-10
II-10 V-14 VIII-1
III-6 VI-10 IX-11

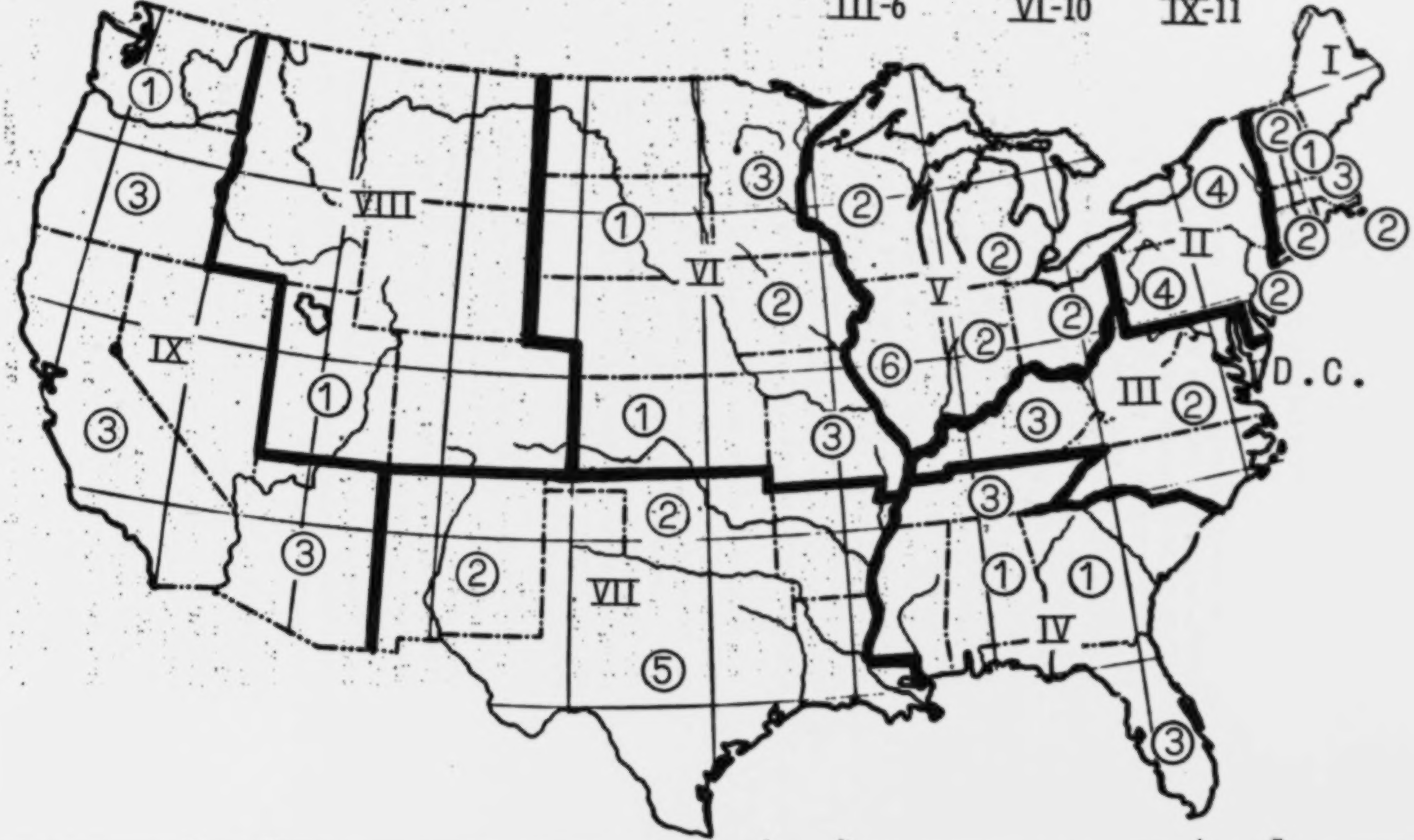
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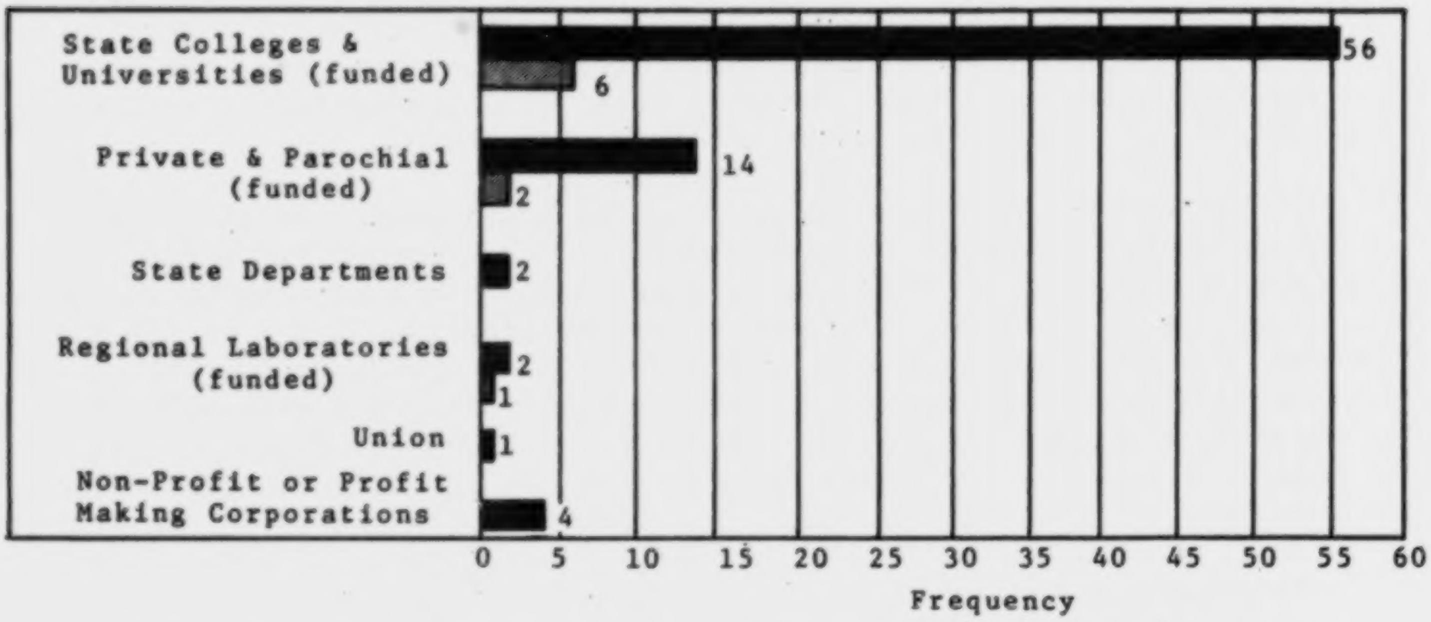
FIGURE 1
TYPES OF INSTITUTIONS

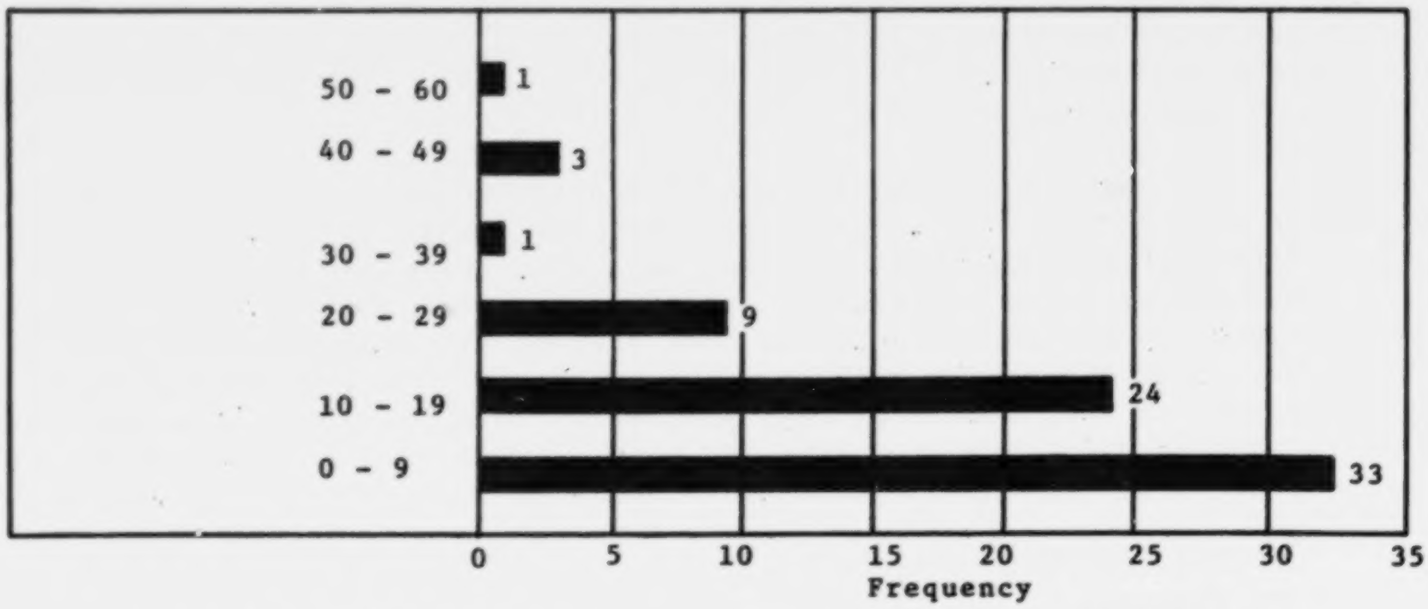


Comment: A majority of all proposals came from state colleges and universities (includes state-related universities).

Fifteen proposals including two regional labs and two state depts. specified detailed consortia.

Of the nine funded proposals eight came from multi-purpose universities including one consortium and one came from a regional laboratory.

FIGURE 2
Size of Institution Originating Proposal
(in thousands of students)



Comment: Over one-third of the proposals came from institutions with less than 10,000 students. Almost one-half came from the smaller institutions. Almost three-fourths came from institutions with less than 20,000 students.

Above data based on higher education institution proposals, not laboratories, corporations, state departments.

There was a great deal of variability in the size of the institutions originating the eighty proposals. Figure II summarizes the data on the size of institutions excepting laboratories, corporations, the state departments and the union. Proposals came from predominately smaller institutions with less than twenty thousand students.

Figure III presents the data on the productivity of the submitting institutions based on the AACTE 1967 study of Teacher Productivity at the bachelors level. In addition to the consortia and non-higher education institutions the range of teacher productivity ran from 0 to 866 with a mean of elementary teachers produced at the baccalaureate level of 204 in 1967. Although no report on teacher productivity was available on nineteen of the eighty proposals, it was noted that the largest number of submissions came from the nineteen institutions producing between 200 and 299 teachers in 1967. AACTE member institutions were active in submitting proposals generating all of the proposals except four. Of these, one was in partnership with an AACTE institution and one corporation originated proposal was directly affliated with an AACTE institution. All the consortia and non-higher education institution proposals were directly affliated with AACTE institutions.

The proposal initiators requested a wide range of funds. These data are presented in Figure IV. The mean request was for $92,900. There is an apparent relationship between the number of proposals funded from among those requesting the lesser amounts of money and the number funded from among those requesting the greater amounts of money.

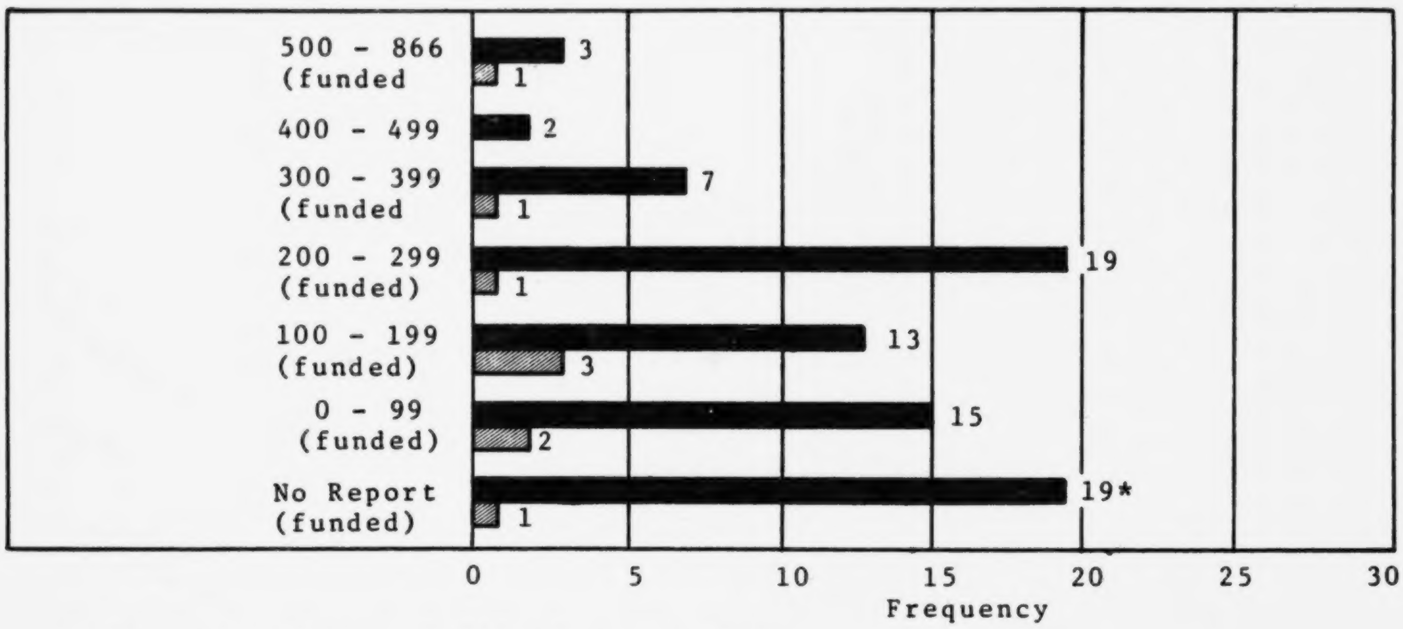
The Evaluative Process

Of the initial eighty proposals nine were eventually funded. The location of the funded proposals by state and federal region is indicated in the following map. The process by which these contracts were awarded is an interesting one.

Upon receipt at the Office of Education detailed and intensive readings were given to every proposal. Records available to this investigator indicate that no proposal was read less than twice nor more than eight times by separate independent readers. The mean number of readings of every proposal, including those that arrived after the deadline date was four. Both subjective evaluative comments and numerical ratings were assigned by each reader to each proposal. On a one-five scale with one indicating high score and five indicating low score, the mean rating on all proposals was 2.99 with a high rating of 1.25 and a low rating of 5.

After initial detailed reading and screening and following internal staff discussing, the top rated seventeen proposals were distributed to field readers who later convened as a evaluation panel. The membership of this panel was indicated earlier. The panel also read several additional proposals when convened in Washington. The panel chose to rank twelve top proposals in three categories of priority. From among these selections by the external evaluation panel the Office of Education, Bureau of Research was able to fund the nine models previously announced.

FIGURE 3
Elementary Teachers Produced at Bachelors Level '67

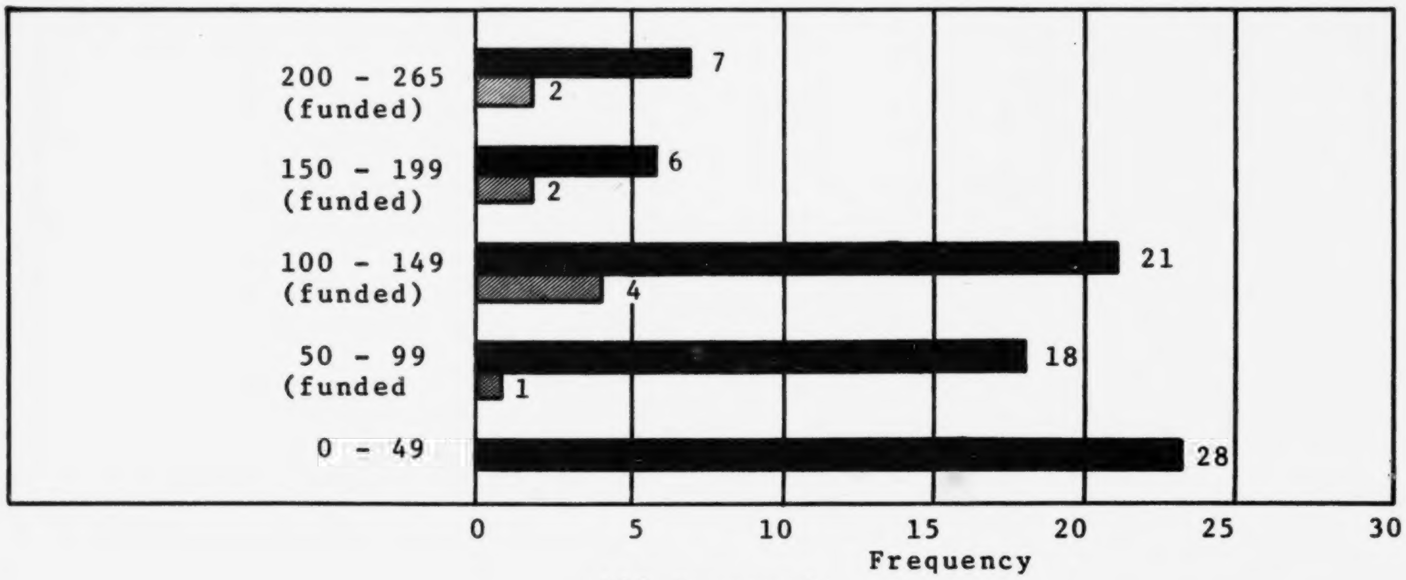


Comment: Range= 0--866 plus consortia
Mean= 204

All proposals originating from higher education institutions came from AACTE members with the exception of four - one of which was in partnership with an AACTE institution. One corporation originated proposal was affiliated with an AACTE institution as were all consortia proposals.

*Includes union regional laboratories state departments, corporations, four non-AACTE institutions and six AACTE institutions.

FIGURE 4
Funds Requested (in thousands)



All Proposals

Comment: Range= $10,500 - $271,600 (rounded)
Mean= $92,900

Funded Proposals

Range= $101,000 - $249,800 (rounded)
Mean= $148,100

Forty-six proposals requested less than $99,000 of which one was funded.

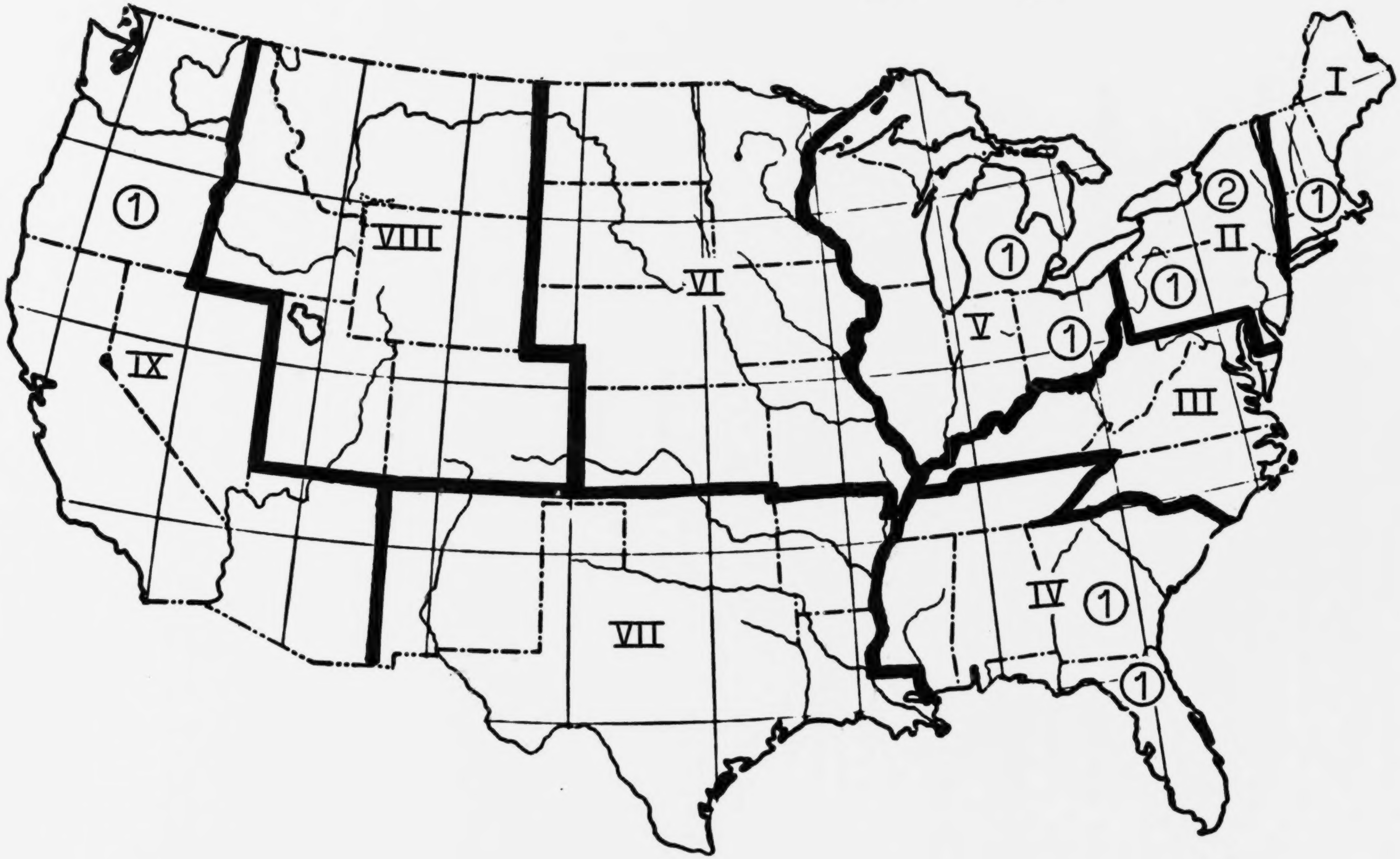
Thirty-four proposals requested over $100,000 of which eight were funded

9 PROPOSALS FUNDED

FEDERAL REGIONS

I-1　IV-2　IX-1

II-3　V-2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III
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VIII
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IX
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VII

The contracts were awarded to the following:

Florida State University
Tallahassee, Florida

Michigan State University
East Lansing, Michigan

Northwest Regional Laboratory
710 S.W. Second Avenue
Portland, Oregon

University of Massachusetts
Amherst, Massachusetts

University of Toledo-Ohio Consortium
Toledo, Ohio

Syracuse University
Syracuse, New York

Teachers College
Columbia University
New York, New York

University of Georgia
Athens, Georgia

University of Pittsburgh
Pittsburgh, Pennsylvania

Of the nine funded proposals eight came from multi-purpose universities including one consortium, and one came from a regional laboratory. As far as teacher productivity is concerned, barring the regional laboratory, two of the institutions funded produced less than 100 teachers at the baccaluareate level in 1967 while five institutions produced between 100 and 400 teachers and one produced 866 elementary teachers. With the exception of the regional laboratory which is directly affliated with a large number of AACTE institutions, all of the funded programs were proposed by AACTE member institutions. The proposals that were funded tended to request larger amounts of money for the design phase than those that were not. The mean of the funded proposals in terms of funds requested was $148,100. One proposal requested less than $100,000 and two proposals requested more than $200,000. As far as location is concerned four of the funded models are in the Northeast, two in the South, two in the Midwest, and one in the far West.

General Analysis and Critical Factors

Upon undertaking this study, and after careful re-reading of all of the eighty proposals, the author constructed a list of twenty-eight critical factors against which each proposal was rated. Primary consideration was given to the seventy-one unfunded models for purposes of this report since the design phase of the nine funded is currently under way and will result in detailed educational specifications for elementary teacher education programs. The twenty-eight critical factors were derived from the author's understanding of the total program and from the specifics detailed in the request for proposals from the Office of Education. The list of these critical factors follows:

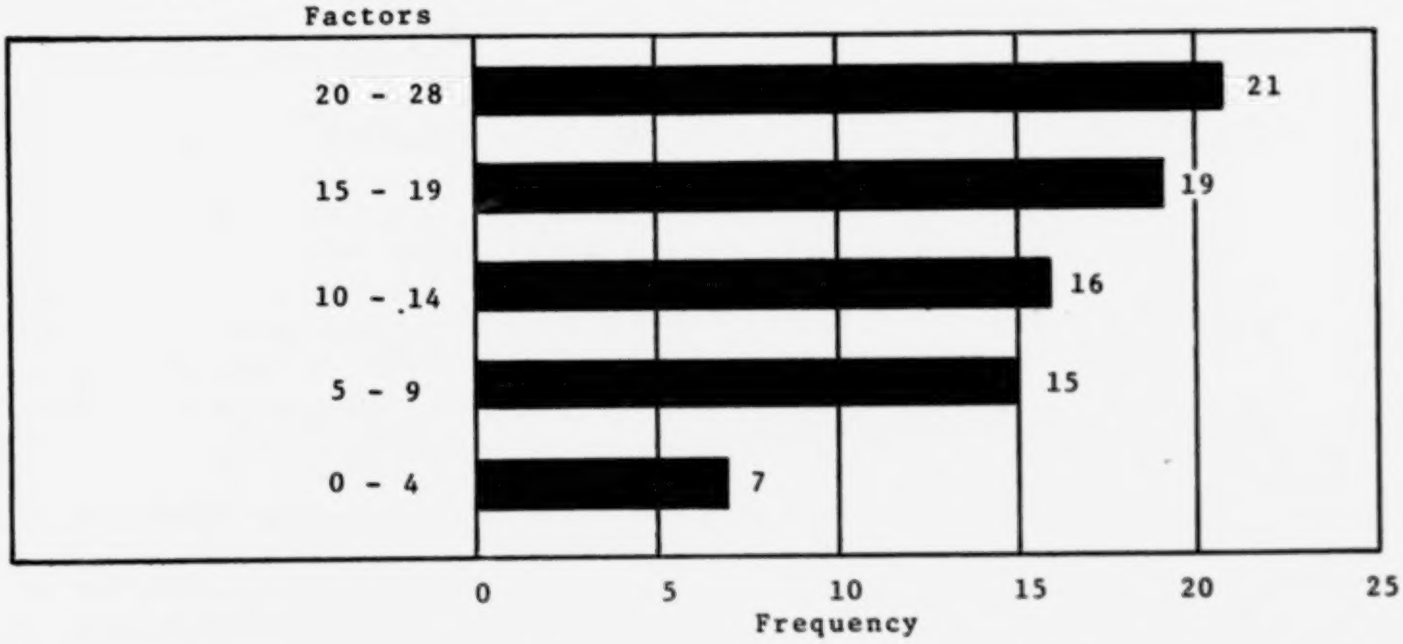
1. A statement of needs.
2. A theoretical rationale rooted in logic, experience, and/or research.
3. A statement of goals, aims, objectives or purposes.

4. A statement of behavioral tasks to be accomplished by the products of an elementary teacher education program.
5. A specific plan for selective admission and retention policies and practices.
6. A statement of theory undergirding the various program components.
7. The subject matter of the professional component of the program.
8. Basic rationale for instruction within the program.
9. Specification of methodology, techniques, tools, grouping, and individualized instruction.
10. Pre-classroom teaching clinical experiences.
11. Student teaching, internship, externship.
12. Relationships to the non-professional undergraduates sequence, academic specialization, general education and liberal studies.
13. A plan for in-service education for graduates of the program.
14. A plan for faculty in-service and staff utilization.
15. Evaluation and feedback plans and mechanisms.
16. A follow-up plan on graduates of the program.
17. A plan for management, evaluation, data storage, diagnoses and restructuring.
18. An assessment, revision and up-dating program plan.
19. Stress on early childhood teacher education.
20. Stress on education of teachers for the "disadvantaged."
21. Plan to develop subject-specialist teachers or team teachers.
22. Utilization of audio visual or multi-sensory instructional technology such as computers, television, micro-teaching, programmed learning, etcetera.
23. Affliation with industrial technological consultants, organizations or agencies.
24. Affliation with clinics and testing services.
25. Affliation or linkages with public schools, school study councils, etcetera.
26. Affliation with state departments of public instruction.
27. Affliation with other education and education-related institutions or agencies.
28. Affliation with non-elementary teacher education professional personnel.

Rightly or wrongly, and certainly arbitrarily, the above twenty-eight critical factors were used by the author and his consultants on re-analyzing the seventy-one unfunded proposals. Apparent to any reader is the fact that the nine funded proposals tended to have specific plans on each of the twenty-eight factors. At least each of these factors was in evidence.

After constructing detailed and extensive charts the data on these twenty-eight factors for the seventy-one unfunded models were summarized and are presented in Figure 7. Noticeable is the fact that all top-ranked models, both funded and un-funded, presented detail work on seventeen to twenty-eight of the critical factors while no proposal that dealt with less than fifteen of the factors in any detail was ranked in the top half either by the Office of Education or by the author and his consultants.

FIGURE 5
Proposals Detailing Plans on Twenty-eight Critical Factors



Comment: All top-ranked models, funded and un-funded, presented detailed work on 17 - 28 critical factors.

No proposal that dealth with less than 15 of the factors was ranked in the top half by O. E. or the author.

N= 78 proposals available for detailed analyses.

In retrospect, the search for innovativeness and uniqueness among the unfunded proposals and their respective program components was not as exciting or rewarding as the investigator had presumed it would be. Despite the fact that the Office of Education was quite specific in indicating that not every one of the nine major programs components needed to be dealt with in the proposals and that initiators could construct their own outline, a rather surprising number of proposals didn't even mention several of the major program components. Several requests were merely proposals for the Office of Education to fund the existing program at the institution. Several additional requests were related solely to the addition of one program component, or at the most two, to be added on to the basic elementary teacher education program already in existence.

On the other hand, it must also be pointed out that there was a great deal of confusion around the country on just exactly what it was that the Office of Education, Bureau of Research wanted in its requests for proposals in October, 1967. Obviously, a variety of perceptual screens were and are operating with respect to this total program.

Initially the investigator planned to devote the bulk of this report to the next section taking up each program component in the request for proposals in turn and illustrating with a wide variety of innovative and unique elements derived from the seventy-one unfunded plans-to-plan. This procedure has been followed but in less detail than originally planned. Subsequently, an additional section was added where we have selected, abbreviated and edited a number of illustrative models for presentation. Conduct of the entire project has lead to the conviction that the procedure adopted is perhaps of more value than the original plan.

III

PROGRAM COMPONENTS

Although this study reanalyzed the unfunded proposals on the basis of the twenty-eight aforementioned critical factors, it appeared more expeditious for purposes of illustration to develop this chapter primarily on the nine program components called for in the guidelines with only brief terminal notes on several additional factors. Throughout the analysis an attempt has been made to search for the unique or innovative aspects of the various proposals. In the sections following in this chapter a brief introduction to each program component is followed by one or more representative or unique aspects of one or more proposals.

These bits and pieces must be read with a continuing awareness of the fact that the proposals submitted were really plans-to-plan. Not all programmed components were worked out in detail. Rather, many proposals concentrated on the theory, rationale, goals, objectives and program outlines leaving detailed specifications hopefully to be developed in the funded design phase. Furthermore, the reader must also be aware of the fact that the guidelines by their very nature tended to predict the content of parts of the proposals. For example, the call for specified teacher behaviors, for multi-purpose management and systems analyses, for in-service training of both graduates and faculty were all among these predictive elements. The stress on analyzing actual teacher behavior, specifying teacher learning objectives and tasks and developing programs to train for these tasks was most noticeable throughout the analyses of the unfunded proposals.

A. Goals, Behaviors, Rationale

The guidelines specified this program component by stating, "Teacher-training-program goals in terms of expected and measurable teacher behaviors; the rationale for each of the desired behaviors."

In addition to the above aspects of this program component a number of the proposals cited weaknesses of existing elementary teaching and elementary teacher education programs and supported their proposals by some statement of needs. Forty-nine out of seventy-eight proposals had explicit needs statements. Very few of the proposals developed specific rationales for each aspect of the program but sixty-one out of seventy-eight proposals did offer some short or lengthy rationale for the total proposal. Analysis of these theoretical or research rationales indicated that two out of seventy-eight proposals gave extensive research background, thirty out of seventy-eight proposals dealt primarily with what might be called a logical theoretical approach to the proposals and twenty-nine of the seventy-eight analyzed offered both research evidence and logical theory for their rationales. In addition, statements of specific goals, aims or purposes were found in sixty-two out of the seventy-eight proposals analyzed. As far as behavioral tasks are concerned twenty-three out of seventy-eight proposals gave very specific lists of teacher competencies, behaviors or tasks while forty of the seventy-eight proposals indicated that it would be desirable to develop statements of specific teacher behaviors but did not suggest what those behaviors might be prior to the funded design phase.

Several proposals dealt with some failures of existing traditional programs of teacher training. Number fifty-five indicated

"1. Failure to integrate the resources of the community, the schools (both public and private) and the teacher training institutions.
2. Failure to integrate effectively the wealth of educational theory with actual classroom practice.
3. Failure to provide for early exposure of the trainee to the classroom teaching situation.
4. Failure to provide the necessary program flexibility.
5. Failure to adapt to societal change."

Proposal number five set forth its specifications by challenging the following traditional shibboleths and practices presently regimenting most programs for preparing teachers for pre-school and elementary grade children:

"1. That professional education should be superimposed upon a broad program of general education required of all undergraduates.
2. That completion of a prescribed program of studies with the minimum grade point average is a reasonable basis for assuming competence to teach.
3. That the preparation of teachers is almost solely the responsibility of teacher educators and other college-based personnel.
4. That all teachers of elementary children need the same kind and amount of preservice preparation.
5. That a single program of teacher education directed largely toward middleclass education taught in schools organized into self-contained classroom units is adequate for preparing teachers to work effectively in schools with complex and specialized problems.
6. That all reasonably endowed people have the potentiality for becoming satisfactory teachers of elementary school.
7. That students can be prepared to replace traditional biases with a preference for innovation and more creative approaches to teaching simply by 'learning about' new practices or by studying the pertinent research.
8. That completion of requirements for a baccaulereate degree and development of competency for teaching are inevitably equated conditions.
9. That sophisticated and self-confident teachers can be prepared by a program restricted geographically to a single campus or community.
10. That students who are well grounded in general knowledge and educational foundations can be expected to draw specific implications and make general applications of this knowledge to the teaching act without widely varied and almost continuous opportunities to develop this skill under guidance in their program of preparation.

11. That educational programs are best defined in courses studied on schedules which breakup the day into many isolated units, each culminating in a grade recorded without reference to the professional objective of the student.
12. That a basic textbook per course, plus a library of supplementary reference materials, represents the best possible definition of adequate minimum resources for learning any given body of knowledge."

Proposal number sixteen set forth a series of basic assumptions undergirding its program:

"1. Elementary teaching requires thorough knowledge of the subject matters being taught, of learners and the learning process, of teaching strategies and procedures, and of the institution of the school.
The implication of this assumption is that the preparation of elementary teachers should take place in the college classroom and library, and in teaching and learning laboratories, and in real schools with real pupils. This means the active collaboration of academicians and educationists and school personnel.
2. Elementary education involves some active participation of pupils in the planning and evaluation of learning experiences so that these experiences will have maximum meaning and relevancy.
The implication of this assumption is that elementary education students actively should participate in the planning and evaluation of their own learning experiences.
3. One major function of elementary education is to assist the integration of each pupil in his environment and to promote his development of a worthwhile identity. Elementary teachers have the responsibility for this guidance function.
This assumption suggests that the preparation of elementary teachers must include enough contact with elementary pupils to understand them as individuals along with the study of human development.
4. A second major function of elementary education is the learning of communication skills. These involve not only listening, speaking, reading and writing, but also understanding of the culture, both past and present, so that information can be received from a wide variety of sources and exchanged with a wide variety of people.
The implication of this assumption is that the preparation of elementary teachers should include emphasis on communication skills and a wide variety of cultural experiences.
5. Elementary teaching is in the process of changing in the direction of increasing interaction between the teacher and other teachers, the teacher and quasi-professionals, and the teacher and other adults. This process began with extensive adoption of parent-teacher conferences in the 1950's. It has involved the widespread acceptance of certain teaching specialities in the elementary schools, such as music, physical education, and art. It has included some limited inter-class grouping practices, such as non-grading , the Joplin plan, departmentalization, teaming and dual progress plans. More recently it has involved the use of quasi-professionals and teacher aids as in-

structional and clerical assistants in the classroom. The elementary teacher is not as isolated from other adults as he was fifteen or even five years ago, and although the elementary classroom is not 'departmentalized,' it is not quite 'self contained' either.
One implication of this trend is that elementary teachers must be prepared to work with other adults in the classroom and be prepared to contribute a specialized function to the curriculum or instruction or management of the classroom.

6. A major portion of elementary education is and will continue to be interdisciplinary. Elementary education has always focused on broad fileds of knowledge, e.g., the language arts and social studies, the integration of several disciplines in a project or unit, and the use of large blocks of time in a single classroom. These features of an inter-disciplinary curriculum are relevant to the interests and needs of elementary pupils, and will continue in practice.
The implication of this assumption is that the preparation of elementary teachers must include a broad general education and an interdisciplinary focus. The latter may take form of interdisciplinary experiences at the professional level, or interdisciplinary specializations, or both. In any case, it means the collaboration of academicians, educationists, and school personnel in the development of integrated curricula for elementary education students.
7. Elementary schools have pupils representing a cross-section of the community. Every elementary school has some children who are 'disadvantaged.'
The implication of this assumption is that institutions preparing elementary teachers should recruit students from a cross-section of society, including the 'disadvantaged.' The education of elementary teachers should include not only the study of the sub-cultures of society, but first-hand experience with pupils representing the sub-cultures.
8. Educational experiences are most effective and relevant when their objectives are clearly defined in terms of the expected behaviors of the students.
This implies that the preparation of elementary teachers should have clearly defined behavioral goals which are closely related to classroom teaching."

Proposal number twenty posed a strong argument for an Open Education classroom wherein children would have more active intellectual independence, greater critical facility, and a corresponding self-reliance and self-acceptance. It argued that an elementary teacher education proposed program should be rooted in consideration of children having the following characteristics:

"1. The child will take an active part in his own learning. This active participation would include accepting responsibility for constructing his own curriculum in school.
2. The child will have the ability to purposefully involve himself

in a self-selected task for long periods of time, during which he would be relatively invulnerable to distraction.

3. The child will rely more on his own powers than on help from either his peers or his teacher.
4. The child will interact freely, creatively, and undestructively with the environment around him.
5. The child will be self-confident and unanxious; he will know his own mind, enjoy making decisions, and not spend time trying to 'second guess' his teachers.
6. Psychologically, he will eschew the ego-defensive mechanisms of suppression and repression and demonstrate, instead, a genuine openness to his own feelings.
7. The child will have a certain manual competence that allows him to externalize through material objects his own desires and ideas.
8. The child's sources of evaluation will be internalized and individual; he will not always be looking to the teacher for rewards and punishments.
9. The child will exhibit ideational fluency and creative flexibility in his thinking an d open-minded tolerance in his social behavior. His respect for the different and the new will be balanced by judgment."

Proposal number twenty-two argued for a program to increase total teacher effectiveness pointing out that the achievement of such a goal would be demonstrable and measurable in two ways:

"1. The child would achieve better and faster while demonstrating a more positive attitude to learning in general and school in particular, and
2. The teacher's view of her professional self would be better if she would find teaching a more rewarding and satisfying task."

The proposal presented the following characteristics of both teachers and children in such settings:

"I. Such a teacher:
  a. Would be task oriented.
  b. Would experience and produce less anxiety.
  c. Would have more options available to her and consequently present more options to her class.
  d. Would be more reality oriented particularly in terms of her interactions with her class. Her responses to her students would result less from sterotypes, prejudices, personal neurotic needs and educational cliches.
  e. Would foster positive values avoiding the use of guilt, anxiety or punishment as motivators, yet develop child-centered relevant limits and structures.
  f. Would actively encourage group solidarity, assisting the children to interact with each other in a constructive task oriented fashion.
  g. Would utilize her own affective potential by giving and receiving feelings, thereby helping the student to express,

control and sublimate (rather than inhibit) feelings, especially negative, disruptive emotions.

II. A child so taught and treated:

a. Would feel free to utilize his curiosity by exploring relevant classroom topics and solutions.
b. Would demonstrate a greater degree of involvement with the educational process, and a greater engagement with others in constructive human interactions.
c. Would actively participate in the planning and mastery of educational tasks.
d. Would find considerably more pleasure and satisfaction from the mastery of educational materials, and personal goals.
e. Would demonstrate less disruptive neurotic or aggressive behavior."

The next section of most proposals dealt with various kinds of definitions of objectives and goals and specified teacher competencies, behaviors or tasks. Proposal number nine used a working definition of teacher competence derived from one of its earlier publications:

> "A single definition of teacher competence is static, a priori, almost immediately anachronistic, and usually incapable of generating widespread agreement. Nonetheless, some conception of competence is necessary to guide Laboratory planning. One who would examine the Laboratory program which focuses on teacher competence, might reasonably ask what our view of teacher competence is. The following characteristics are descriptions of competent behavior in the teacher toward which the Laboratory would bend its efforts.
>
> A teacher is becoming more competent when he:
>
> a. Is systematically engaged in intelligent analysis of his goals and his behavior in reaching toward those goals, and seeks to modify his behavior, when necessary, in light of his analysis;
> b. Is learning to create, adopt, and adapt to new forms of content, organization, and method when they are pertinent to guiding purposes;
> c. Is acquiring more information germane to what he does and wants to do, and has the habit of critical inquiry;
> d. Is becoming more flexible, sensitive, self-confident, and imaginative as a person and as a teacher;
> e. Is learning to work more creatively and in new relationships with other colleagues and with children;
> f. Is learning to magnify his efforts through use of other school personnel, community resources, and technological support to the means of communication;
> g. Is assuming a higher degree of professional responsibility, including the responsibility to induct new members of the profession.

"In reaching agreement on a definition, the Laboratory staff recognizes that the suitability of a definition of teacher competence depends upon the value system within which the teacher works, and that the definition reflects the priorities in value orientation of those who write it.

(Note: The foregoing statement is taken from 'Report to the United States Office of Education, September 15, 1967.' St. Paul: Upper Midwest Regional Educational Laboratory, P. B8)"

Proposal number one developed an orderly sequence of objectives and behaviors. Their proposal was based on the following objectives:

"1. To help the prospective teacher become a self-actualizing person.
2. To help the student develop self-confidence and security in the teaching role and to encourage the emergence of a personalized style of teaching based on current knowledge but uniquely manifested by each individual.
3. To provide opportunities for the acquisition of knowledge and experiences which would promote understanding of children and to translate these theories into workable designs for teaching.
4. To provide a knowledge of fundamental skills which will aid prospective teachers in the origination, selection, guidance, and evaluation of learning experiences for children.
5. To introduce the student to basic pedagogical skills needed in effective teaching.
6. To develop an awareness and appreciation of the function of the academic disciplines in the lives of children and adults.
7. To provide a firm basis on which the prospective teacher can make sound educational decisions in selecting and evaluating learning experiences and instructional materials.
8. To give the student some philosophical insight into the process of teaching and the role of education in society.
9. To give him opportunities to test his knowledge and skill in teaching experiences with children.
10. To provide a wide range of opportunities for the effective and comprehensive development of teachers during their first year of teaching."

The proposal specified the following teacher behaviors which must be exhibited at appropriate times in the preparation program:

"1. The prospective teacher should develop an awareness of and ability to identify child behaviors of varying kinds and levels, self-behaviors, and pupil-teacher interactions.
2. The teacher-to-be should develop and exhibit desirable personal characteristics which are observable in the following behaviors--democratic behavior, self-control, consistency, encouraging manner, displaying interest, and flexibility.
3. Internalization of positive attitudes by the student may be evidenced by affective behaviors which are described as supportive, encouraging and accepting.

4. The student should develop an increased awareness of and exhibit behaviors which will affect favorably student behavior and performance. Examples are: giving directions clearly and concisely, stimulating and guiding discussions, accepting and clarifying feelings, praising and encouraging, accepting and using ideas and interests of students, and stimulating inquiry into content and procedure.
5. The prospective teacher should exhibit behavior which is indicative of a developing awareness of the teacher's role of activating, maintaining, and directing exploration, meeting requests, responding to and extending concepts."

Specific behaviors were also emphasized during the proposed student teaching phase of the program:

"1. Behaviors related to teaching activities: defining, describing, stating, evaluating, classifying, comparing and contrasting, explaining, questioning, counseling and advising.
2. Behaviors as pedagogical moves: structuring, reacting, focussing, opening, continuing, closing, activating exploration, maintenance of exploration, and direction of exploration.
3. Information Processing Behaviors: sensing, identifying and classifying information inputs, evaluating potential courses of action in light of pupil behavior, the content information communicated, decision making involving selecting of information content and appropriate transmission channels or media.
4. Behaviors related to the learning process: drawing inferences from data, guiding perception, suggesting concept organization, suggesting action, evaluating effects, generating independent methods of inquiry, stimulating creative use of knowledge.
5. Influence behaviors: telling, giving directions, criticizing and justifying authority, accepting and clarifying feelings, praising and encouraging, and accepting and using ideas of others.
6. Response behaviors: meeting requests, clarifying, interpreting, expanding and ignoring.
7. Out-of-class instructional related behaviors: planning and organizing selecting, controlling and sequencing content, selecting media and materials, and determining and stating behavioral objectives."

Proposal number sixty-six specified overall professional behaviors and personal qualities:

"A. Professional Behaviors:

1. The teacher would behave as a professional strategist, having at his disposal a variety of teaching strategies that he can adapt to individual teaching-learning situations. He will be capable of analyzing each learning situation in terms of each child, the content to be mastered, the skills to be developed, and can then select the appropriate strat-

egy or combination of strategies in order to accomplish the intended task. In view of the current research findings related to the different strategies children employ as they learn, it is most essential that teachers possess both knowledge and skill in utilizing these strategies to maximum potential. Children are known to learn at different rates, through different channels, and for different reasons a teacher must be aware of these differences and be able to match his teaching strategy to children's learning strategies.

2. The teacher will perform as an extrapolator - being able to visualize the outcomes of various discernible trends now operating. He will be able to predict short and long range (with reasonable reliability) needs of students. These predictions will be made on the basis of his knowledge of students, current trends, subject matter demands, and societal needs. He will be capable of calculating the range of possible effects from a variety of causes. Being capable of extrapolation himself, he will then be better equipped to guide his students in the acquisition of this skill.

3. The teacher will function as a highly skilled diagnostician having at his disposal a wide array of techniques, devices, and understanding that permit him to analyze student learning proficiencies and deficiencies and make prognostications on the basis of this data. Only by becoming such a diagnostician can the teacher effectively individualize instructional and learning experiences.

4. The teacher would behave as a Zetetist visualizing his role as one who seeks to build bridges between isolated islands of knowledge. The teacher as Zetetist studies human knowledge as a whole and strives to present knowledge as a unity rather than as fractionalized parts of an incomprehensive mass of data. He guides students to seek the origin of knowledge to question these sources, to analyze the methods of proof, to engage actively in research of their own, to expand knowledge within a consistent system. The Zetetist teacher is cognizant of the structural components of each discipline of knowledge; he knows the conceptual frameworks of these disciplines, he knows the methods of verification peculiar to each discipline, and he can direct students in these disciplines in a manner wholly consistent with the disciplines themselves.

5. The teacher will behave as a knowledgeable effective evaluator, skilled in the use of various devices and techniques of evaluation both for self evaluation and student evaluation. This will involve skill in utilizing such devices as the Flanders Interaction Analysis Scale, the Aschner Gallagher system for classifying thought processes, various attitude inventories, diagnostic and achievement instruments,

as well as skill in using and interpreting feedback data from video tapes of teaching performance. Involved in this overall evaluative skill is the ability to store data in such a manner that information is readily available and easily retrievable.

6. The teacher will perform as a subject matter specialist possessing proficiency in a particular subject matter area and possessing knowledge of materials and learning tools that will assist students in acquiring concepts in this subject matter. He will also be a materials specialist in the sense that he knows of a variety of teaching-learning materials appropriate to specific situations and individual students.
7. The teacher will function in a variety of leadership roles in connection with school groups, faculty and professional organizations, and with parent and community groups. He will act as an innovative leader at times, and a stabilizing leader at others. He will possess a repertoire of behavioral respones from which he can select suitable behavior patterns for specific situations.

"B. Personal Qualities:

The teacher will develop to his maximum potential the following personal qualities.

1. Sensitiveness to the needs and problems of
    a. self
    b. students
    c. colleagues
    d. community
2. Empathic responsiveness to these needs and problems.
3. Cosmopolitan outlook (as opposed to narrow, enthnocentrism).
4. Creativeness in interpersonal relationships.
5. Optimism, excitedness, and hopefulness concerning the future."

Proposal thirty-four set forth a series of discreet propositions undergirding its rationale and general approach as follows:

"1. Any instructional system must be predicated upon an assumed or a demonstrated ability to deliver a specified product.
2. Pupil behavior is acquired and maintained under specific conditions.
3. It is the function of the teacher to establish conditions which will facilitate both the acquisition of behavior and the maintenance of behavior.
4. A functional relationship must be established between the conditions and the pupil behavior.
5. Just as pupil behaviors are the concern of the secondary and elementary school, so teacher behaviors are the concern of the College of Education.
6. The teacher-training institutions (public schools, college of education, and the disciplines) specify the conditions under which teacher-behavior can be acquired and maintained.

7. When a functional relationship between specified conditions and the teacher-training program and teacher-behavior is observed, another behavioral chain is established.
8. The trainers of teachers must establish the conditions for learning. This is the essence of the function of an elementary education program."

Proposal number thirty-four went on to specify the following thirteen personal behavioral characteristics of a teacher:

"1. The capacity to communicate ideas, instructions and directions clearly in both verbal and written form.
2. Competence in the tools of learning, to be constantly growing cognitively
3. Demonstrated capacity to differentiate and understand a concept, principle and theory
    a. Understanding methods of scientific inquiry, methods of verifying assumptions and hypotheses
4. Intellectual curiosity and flexibility
5. A searching, self propelled learner
6. Appreciates the tentativeness of knowledge, methods, philosophy and values in the changing society
7. Curiosity about and willingness to experiment with various teaching methods and action research approaches
8. Capacity to convey concern, interest and committment to a child's development
9. Capacity to facilitate wholesome personality development by skillful use of encouragement, constructive feedback and personal warmth
10. Personal awareness, sensitivity to self dynamics and their effects on others
11. Capacity to give messages that positively reinforce cognitive and emotional growth
12. Values openness, curiosity and intellectual learning
13. Appreciates that education is a life-long process."

Proposal thirty-two set forth three types of teacher competencies in terms of expected and measurable teacher behaviors:

"Type I Competencies -- As a result of undergraduate education and teaching experience, it is expected that the student should master the following competencies:

1. Ability for self-expression through
    a. Speaking English acceptably.
    b. Reading orally and silently.
    c. Writing legibly and correctly.
2. Mastery of the basic concepts in the content areas contained in the elementary school curriculum, and an ability to use appropriate methods of transmitting these concepts to children.

3. Commitment to the profession with due consideration for:
   a. Affliiation with professional organizations.
   b. Reading of current literature in education and the subject fields taught in the elementary school.
   c. Willingness to devote time to professional activities.
4. A broad cultural background that makes it possible to relate to and communicate with people of different ages, races, cultures, and ethnic backgrounds.
5. An inner security that gives a positive concept of self and a sensitivity to the self-concepts of others.
6. Objective attitude toward personal and professional change.

"Type II Competencies -- The teacher who completes an undergraduate program should have generalized knowledge in the Psychological, Historical, Philosophical and Sociological Foundations of the Education Profession. While much of this background is acquired in course work and reading in Elementary Education, the teacher should also devote some time to depth study in course work that will lead to the following competencies:

1. Background in human growth and development, including understanding the psychological development of children as well as the appreciation and understanding of children and what they can become.
2. Understanding of the basic principles of learning, the identification of these with the major learning theories, and the application of them to the classroom situation.
3. General knowledge of the history and development of education in the United States, including such factors as curriculum, methods, materials, as well as influence from other countries.
4. Awareness of the philosophical foundations of education, their relationship to the elementary school program and the importance of a conscious personal philosophy.
5. Awareness of the sociological foundations of education, and the inter-relationships between society and the elementary school program.

"Type III Competencies -- The teacher who completes an undergraduate program should acquire the following specialized competencies as a result of courses in the department of Elementary Education.

1. Expertness in instructional methodology including the use of specific teaching techniques associated with the elementary school subjects.
2. The ability to produce a defensible and consistent printout of an elementary school program with due consideration for:
   a. The full range of educational objectives.
   b. Selection of and sequencing of content.
   c. Curriculum patterns.
   d. Organization and personnel.
   e. Grouping students for instruction.
   f. Evaluating and reporting pupil progress.
   g. Methodology.

3. Using evaluative techniques in ways that will encourage the cultural, physical, and mental growth of children. Be able to diagnose individuals and class needs.
4. Acquaintance with significant past and present experimental programs in elementary education, including familiarity with current innovations and the ability for critical assessment of their promose and effectivensss. Be able to use this professional knowledge to plan educational change.
5. Familiarity with current problems in elementary education and defensible suggestions for their solutions.
6. Possession of insight into the importance and essentials of helping individuals develop Democratic values.
7. Knowing sources of information of instructional material (multi-sensory), being able to evaluate and select them, and use them in an instructional setting. Be able to develop teaching materials for specific situations.
8. Develop evaluation of own teaching effectiveness resulting in professional growth."

Proposal sixteen set forth five statements of necessary competence for elementary teachers:

"1. Competence in knowledge of subjects of instruction.
2. Competence in knowledge of learners and learning.
3. Competence in knowledge of instructional designs and strategies.
4. Competence in knowledge of the purposes, functions, structures and operations of schools.
5. Competence as persons who, by ability, disposition and education, can serve effectively as elementary teachers and members of the teaching profession."

Proposal number twenty- eight established a rationale and objectives for citizen-teachers and teaching-scholars.

"Citizen-teachers whose behavior is characterized by:

1. Sensivitity to and understanding of basic personal and social problems and situations.
2. A scholarly approach in dealing with these problems--intelligent problem solving and an emotionally mature expression of ideas and feelings--which include...
   ...drawing upon substantive data in the various disciplines and fields of knowledge and a usable acquaintance with established sources of reliable information.
   ...continuing search for greater understanding and insight.
   ... translating ideas and ideals into action.
3. Commitment to democratic values and their implementation.
4. Creativity in dealing with situations, evidenced by:
   a. identifying and dealing with unique elements.
   b. working cooperatively in ways which release the potential powers of individuals.
   c. experimenting with ideas and new ways of working (behaving).

5. Action governed by principle.

Teaching-scholars whose behavior:

1. Evidence application of the above named characteristics in dealing with professional problems as the individual...
   - ...guides children.
   - ...works with parents.
   - ... works with professional colleagues.
   - ... represents the profession of teaching in the community.
2. Finds uniqueness, as a professional, in scholarship that has as its central focus working with others to develop enthusiasm for learning and the desire and ability to acquire the education each will need. For the teacher this includes:
   - a. ability to relate to the learning of one individual as well as to groups and group interaction.
   - b. ability to select knowledge important to a given individual or group; to restructure knowledge in terms of the motivation of the particular individual or group (to approach a field or discipline from different foci and points of entry).
   - c. ability through the teaching act[2] to develop attributes critical in our changing society such as...
     - ... power to think--to get at the factual dimensions of a position, underlying assumptions, persuasiveness of evidence and arguements, alternative responses, probable consequences of certain choices.
     - ... power to inquire into and understand affective relations--to understand feelings of self and others, to control and direct emotions, to develop realistic confidence and courage with disposition to get involved in life to deal constructively with uncertainty and change, to appropriately relate feelings and intellect; the role of values.
     - ... skills basic to effective behavior and action (e.g. communication, psycho-motor).
     - ... ability to analyze his own teaching performance and that of others and improve his own teaching behavior as a result of rational examination; also to evaluate and implement external analysis.

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[2] The "teaching act" is interpreted to mean more than direct instruction. Among others it includes projecting outcomes and planning for their realization, developing varied and appropriate learning environments, evaluating pupil growth and development, personal counseling.

... ability individually and in cooperation with other professionals (colleagues) to (a) develop curriculum and instructional plans and (b) relate his special competence to other areas, utilizing the talents of others.

... ability individually and in cooperation with others to engage in experimentation and research."

In addition to several of the funded models and one of the illustrative models in the following chapter, two proposals developed a systems analysis rationale. Proposal number forty explained that their project was intended to produce new things as well as expressing some established principles in a new format. Its rationale was rooted in recent developments in the field of systems research.

"Systems

"In its broadest sense a system is any set of interrelated components. In describing systems Larson concludes -

> 'An instructional system is a complex consisting of the following components: Learner(s) and a combination of instructor(s), materials and technician(s), given certain inputs and designed to carry out a prescribed set of operations. This set of operations is devised and ordered according to most recent and pertinent evidence from research and expert opinion such that the probability of attaining the output, specified behavioral changes in the components, is maximal.'

"The prime advantage of the systems approach is that the components or subsystems can be diagnosed separately, after which the subsystems can be conceptually reassembled into a total system.

"Kuhn (1963) states, 'Most of our study of human beings and of society deals with selective or adaptive behavior. This does not involve simple responses to some force, but responses selected to improve the chances of reaching some goal.' It is our belief that the systems approach should supply the format for organizing and analyzing the application-directed behaviors of a teacher education program.

"In the proposed program, each module or subsystem would be centered around goal-oriented application behaviors. Silberman and others have reported that the careful selection of learning objectives in behavioral form proved to be a useful means of developing instructional programs. Following the specification of the learning objectives, revision-evaluation cycles are utilized. As each defect in the subsystem or instructional components are reanalyzed and subsequent changes are made to the defective segment.

"It is evident that clearly delineated behavior provides a basis for evaluation which is both readily apparent and easily distinguished. Mager

(1961), in a definitive discourse demonstrates that where achievement or terminal behavior is overtly demonstrated, competency in stating behavioral goals may be developed. Particularly pertinent to this proposal is a statement by Mechner (1965) who states that behavioral analysis provides for identification of specific skill and knowledge components. He also defines how they may be sequenced to promote effective learning.

"Much of the work in programed learning has revealed that terminal behaviors must be specified prior to sequencing of experiences designed to provide for adequate attainment of skills, knowledges, and abilities. Computer assisted instruction (CAI) work has demonstrated the need for clearly analyzing overt behavior at various check points in order to develop new paths for the learner. Further, provisions in highly sophisticated CAI approaches have also found evidence that internal evaluations of relationships between strategies and behaviors developed can be made. Glaser (1966) supports the value of CAI capabilities by specifically stating that interactions of student characteristics and strategies of teaching are significant in terms of achieving specific student behaviors. Suppes (1966) presents a point of view representative of another recognized dimension of CAI capacities.

> 'One of the most exciting aspects of computer-based education is the opportunity it offers for tailoring instruction to the individual child's needs. An individualized approach is possible at various levels of interaction between student and computer program, though the third and deepest level is still mostly beyond us from the technical standpoint. Each of these levels is called a system.' "

Taking a tasks analysis approach to developing a program for preparation of effective teachers in the elementary grades, proposal number forty-nine explained that tasks analysis is accomplished by direct observation and recording of the performance of the skilled practioner as he accomplishes the tasks involved in his job. Such observation reveals the subtasks included in the job and the behaviors in which the expert engages their execution. This tasks analysis procedure has been demonstrated to be a useful tool in the development of objectives for training. Moreover, the proposal indicates that it is possible to employ variations in a basic approach which simplify its application and still provide information on which valid training objectives can be based. Tasks analysis information was proposed to be assembled in each area of the curriculum to provide a basis for specification of behavioral objectives. The proposal went on to call for an Educational Manager.

"Educational Management

"The list of new methods and media of instruction has greatly expanded the armanentarium of teaching methods. In addition to the traditional methods of lecture, demonstration, group discussion, recitation, etc., tomorrow's teacher must be skilled in such methods as team teaching; programmed instruction, including programmed texts, teaching machines, a variety of film techniques, audio tapes, etc., educational television; new laboratory techniques, and, perhaps, computer assisted instruction. Materials as well as methods have been and may be expected to continue to accrue at an accelerated rate. Moreover, the elementary school curriculum itself has grown, presently including such new elements as the new mathematics, foreign languages, and more sophisticated science instruction.

"The first element of the model curriculum, then, will include training in those skills needed to manage the academic achievement of students. Since this is the major endeavor of the teacher, educational management will account for a large portion of the curriculum. As a rough estimate, it is expected that at least half of the program will be devoted to these skills. This component is called educational management rather than, e.g. teaching methods, to reflect the emergent new look in the elementary school classroom. Recent research developments indicate that less emphasis will be placed on the traditional lecture and demonstration methods of instruction and more will be placed on individual and small-group techniques. The prospects for truly individualized instruction have brightened considerably with the development of an ever increasing supply of automated instructional materials and presentation devices. It seems reasonable to predict that tomorrow's teacher will need to be much more an educational manager than an information transmitter. As a manager, the teacher will delegate much more of the instructional burden to media than is presently the case. To some extent, of course, teachers have always delegated a portion of the instructional burden, to traditional texts, workbooks and other teaching aids. However, many of the new media provide for fully self-instructional study, permitting individualized pacing and sequencing with a minimum of teacher intervention. In order to use these new media to best advantage, the teacher must be able to supervise and manage the progress of each individual in the class. The monitoring and management skills needed to keep individual students on separate instructional tracks may be expected to be somewhat different from those employed to manage the progress of a traditional class as a group. At this juncture, it is not possible to analyze the task of the educational manager by direct observation because it is a job which has not yet been fully defined. A large number of new developments are presently at various stages of experimental tryout and revision. The present state of the art of implementing individualized instruction in conventional school environments is more at the point of identifying the problems involved than finding their solutions.

"The approach to be taken during this project will be to compile, based upon a thorough search of the literature, a list of the alternative 'methods' not available to the elementary school teacher. The essential teacher behaviors involved in each of these methods, hence the knowledge and skills necessary for their implementation in the classroom, will be developed by means of an analysis of the tasks involved in the implementation of each method.

"The successful educational manager will need a variety of skills, some of which can be specified at the outset of the project. Perhaps primary among the needed skills is the ability to assess, on a continual basis, the progress of each of his or her students. This will call for frequent analysis and interpretation of proficiency test scores in order to keep each student moving smoothly along on a reasonably optimum basis. In addition, the educational manager must be able to supplement programmed materials with personalized attention to individuals and groups of students. Although much of the instructional burden can potentially be delegated to self-instructional materials, the teacher must provide, perhaps more than ever, motivator and integrator functions. Thus, the educational manager must be able to plan meaningful discussions and projects for a group whose members have achieved different numbers of course objectives at any given point in the school year. Regardless of how thoroughly the objectives of instruction can be achieved with self-instructional materials, the evidence to date indicates that student motivation is not well maintained by these materials. Also, it has not been possible to define in precise terms all of the objectives of public education. So long as agreement cannot be reached on the definition of objectives such as good citizenship, creativity, aesthetic appreciation, etc., the individual teacher must assume the responsibility for achieving them in a manner consistent with the values of her school system. Thus, the educational manager role calls for analytical skill in the interpretation of test data and skills in the integration of subject matter into a logical whole, the ability to motivate students, and the ability to achieve a variety of educational objectives involving values that do not lend themselves to automated instruction.

"Particular attention will be given, during this phase of the program, to the training of teachers to implement the general approach incorporated in the development of programmed instruction, i.e., the specification of behavioral objectives, and a carefully planned sequence of instruction aimed at achieving them. The ability to implement this general approach may be expected to have a salutary effect on the elementary teacher's entire approach to her job and to minimize her willingness to assume that an educational objective has been achieved in the absence of any observable evidence of a change in student behavior. Attention to the systematic approach to instruction will also enable the teacher to approximate methods and media which may not be fully available at her place of eventual employment. Since teachers do not always have very much control of their classroom resources, the techniques and media they can use may be quite limited. The ability to come up with 'do it yourself' adaptations of new techniques and media would, in this case, be useful.

"In addition to being able to use presently available media, methods, and materials, the effective educational manager must be able to keep abreast of change. Therefore, the educational management portion of the curriculum will include instruction on and practice in the use of reference materials that will serve as sources of information about new developments in elementary education."

B. Selection Procedures

Selection procedures were detailed in fifty-three out of the seventy-eight program proposals analyzed. Thirty-eight of these fifty-three descriptions of projected selection procedures were merely descriptive of what the institution was already doing. Fifteen of the proposals cited some unique or innovative approach in addition to what was already being done at the institution.

Proposal forty-nine asks the question "who shall be accepted into the program?" In discussing the selection of trainees this proposal made the following statement:

"A number of selection instruments are available for teaching candidates. In addition to the general intelligence tests, a few specialized tests (e.g., the MTAI, special MMPI scales and others) have been developed for specific prediction of teaching success. However, there are two practical reasons for urging small emphasis on such instruments. The first reason is that candidates for teaching careers, while of higher intelligence than the general population, have been consistently found to rank at or near the bottom of professional candidates (Wolfe, 1954; Lieberman, 1956). Thus, it would appear that teachers colleges are not in a very good position to choose among prospective students. At best, selection devices would appear to serve the function of screening out candidates who have little prospect of completing training. The second reason for reluctance to place great emphasis on selection is that available screening devices have generally not been demonstrated to predict success in the field. For instance, Morsh and Wilder (1954) viewed 55 studies of the correlation between intelligence test scores and teaching effectiveness measures. They found that the small proportion of studies reporting significant positive correlations (16 to 55) were balanced by an equal number in which negative correlations were reported, the remainder showing essentially no correlation. At this juncture, then, it would appear that adequate tools for teacher selection are not available and that candidates for teacher training programs do not allow for great selectivity even if the tools were available.

"The position to be taken during this project is that adopting institutions might better approach both selection and background preparation of candidates from an experimental point of view. That is, all those candidates for the professional curriculum who have satisfied state and local legal requirements should be admitted into the program. Their achievement in the program should then be taken as evidence of the suitability of their intellectual, personality, and educational preparation. By instituting a system of systematic appraisal of the effects of each of these factors on success in the program and, later, as practicing teachers, guidelines can be established over a period of years as to determinants of success. In this manner, adopting institutions will be able to develop selection criteria and guidelines for prerequisite course work that have demonstrated validity."

Proposal thirty-four rather fully developed a task force with major strategies and expectancies with regard to teacher selection.

"Task Force III -- On Selection and Retention will devise procedures to determine whether individual prospective teachers possess the desired behaviors specified by Task Force I or the potential to acquire them through the experiences specified by Task Force II. Basically it is the dual responsibility of specifying systems for both the prediction and determination of student success in the program. This work will be rendered less difficult because the input from the other two task forces will be in the most refined and usable form.

"Additional rationale for this procedure together with examples of specific processes to be developed follow:

"As education of the future moves toward the use of new media as important sources of instructional assistance, the teacher will be increasingly confronted with the task of using his affective resources, understanding and skill to enhance wholesome personality development of the pupil. This means that he must have the capacity to communicate concern and personal warmth to his pupils. As the old model of the teacher as the authoritarian begins to fade, he will need to possess deeper insight into himself and the influences his behavior has on pupils. He will also need to be a skillful catalyst of learning as well as an innovator and creator. He must learn to live with the tentativeness of knowledge and demonstrate the capacity for unlearning and/or relearning. His intellect must be searching and his quest for knowledge self propelled. The teacher of the future will have to be a person who thrives on the experimental, a person who is both an effective problem solver and a skillful psychological tactician.

"It is this type of person (essentially the description contained in the expected teacher behavior goals) that provides the primary focus for trainee selection. Using these criteria in the refined form produced by the other task forces, the trainee will be evaluated beginning possibly with his first involvement in a freshman education seminar.

"The major strategies for the identification and/or selection of trainees would involve the following major elements:

1. Identification of standardized testing instruments to measure learning or scholastic potential, facility with reading, computation and communication. As part of this, tests and/or procedures would be identified that assess creative expression and capacity to solve unique problems.
2. Assessment of physical fitness.
3. Procedures for assessing historical-developmental data as a means of identifying capacity for the development of expected teacher behaviors.
4. Assessment procedures for incorporating the concept of trainee self-selection.
5. Behavior Rating Scales of expected teacher behaviors to be used in continuous (and early) evaluations by major involved people.
6. Methods, experiences and opportunities for trainees to give feedback to each other in respect to their behavioral interaction and functioning.

7. Procedures for structuring systematic depth interviews.
8. Methods by which collected data may be recorded and analyzed and tested for validity, or predictive value.

"While some of these procedures are self evident and need no further elaboration, others will be more clearly specified.

"Central to the whole process of trainee selection is early and continuous involvement in teaching and interaction with children in a variety of settings. With this involvement the people who are charged with the responsibility of directing these experiences will be continually evaluating the trainee in a two-way communication relationship. As the trainee involves himself during the first two years in teaching-learning situations he will be constantly evaluating himself in respect to his capacity to perform expected teacher behavior roles.

"It is essentially true that individuals develop their relationship, cognitive and affective-emotional styles substantially before admission to college, appropriate selection of the potentially effective teacher require careful assessment of historical-developmental data to provide clues to the potential for the development of expected teacher behaviors. For example, Ryans in his study of teachers contained in the book Characteristics of Teachers found that those teachers who were considered effective had a childhood history of "playing school" frequently. Systematic assessment will be made of behavior episodes or past experiences that reflect capacity: 1)make emotional investments in personal relationships; 2)to be a self generated learner; 3)to be personally adaptive and flexible; and 4)to be a constantly curious. Methods will be developed to obtain this information through written samples from trainees and by systematic interview.

"Behavior Rating Scales (of expected teacher behaviors) will be devised and utilized by university instructors, clinical supervisors and teachers at each state of learning, observation and participation. This data will be placed on data cards and analyzed along with other standardized test information.

"Procedures will be specified for conducted depth interviews systematically designed to determine if prospective teachers have, or might reasonably be expected to acquire essential personal qualities. Other techniques for exploring dimensions of affect, interpersonal and impact skills will also be devised. Consideration will be given to the utilization of small group situations in which prospective teachers will assess each other and engage in self-exploration. One hoped for outcome is increased insight for the student into his own personality make-up and greater sensitivity to his own inner workings as well as those of others. Another, which is more central to the present discussion, would be opportunities for self appraisal and possibly self elimination from the program as well as opportunities to gather significant data for the institutional selection and retention process.

"Initially both the selection and retention criteria will be derived from rational or logical bases. Empirical data accumulated in research studies here and elsewhere will be applied whenever there is evidence of the generalizability of such research to the specific character of this program.

"As data with respect to the effectiveness of the selection and retention criteria begin to accumulate, the self-correcting mechanism will 'weed out' measurement and evaluative devices which possess low predictive value. Quite possibly new instruments will be developed.

"Essentially the effectiveness of this process will be as much contingent upon a precise specification of entry behaviors and characteristics as upon an on-going assessment of behavioral changes which take place as a result of the preservice and in-service training program. Corollary to this assessment, the process will simultaneously lead to the necessity of making decisions with respect to the effectiveness of elements of the program. Thus at a given point in time, it is conceivable that a decision might have to be made with respect to altering the retention criteria or altering the nature of the training program or both. Indeed, when carried to its ultimate potential, the application of the self-correcting mechanism will even force a re-examination of the original statement of desired teacher behavior goals, since it is possible that, originally, one might select goals which are too 'cheap' or goals which are impossible of attainment.

"The most important aspect of the process, then, is the fact that there is a continual interaction between goals, experiences, and selection and retention procedures, At any time one or all or any combination of the three may be subject to revision on the basis of accumulated empirical data."

Proposal nineteen stated that the criteria for selecting students for the model program cannot be presumed in advance. "It should be noted that the model we propose to develop will likely pose the question of selection somewhat differently than sometimes conceived. That is, if we are to focus on developing different individual competencies, then one would ask about an applicant what special attributes he would add to the program, rather than is he like other candidates in terms of common denominators. We would forsee devising administrative techniques which would place the responsibility for selection with the faculty involved and would encourage the possibility of continuing self-evaluation and self-selection. To this end, it seems likely that the program would need to include tutorial and counseling components."

Proposal thirty-seven specified its expected practices for selecting teacher trainees.

"The second screen also will have a rather coarse mesh. The College's past experience indicates that attitudes and personality 'sets' are highly significant of success in internships. The college has experience with use of the MTAI, TSRT and Rokeach's "D" scale. One or more of these is likely to be used as a way of assessing flexibility and ability to achieve affective goals.

"Third screen is the summer experience itself. Preceding the full year's internship, the summer program affords opportunity for students to learn whether or not, or to what degree they like to work with children, as well as their initial, capacities for doing so. By being with these students constantly through the summer, the team is enabled to make a final screening.

"In each of the foregoing steps, it is assumed that a complete academic and professional counseling service exists. It is also assumed that each student is interviewed carefully with respect to his interest in and potentiality for the program."

C. Professional Learning Experiences and Content

The program components called for in the guidelines dealt with the professional learning experiences and content suggested in the areas of theory, subject matter related to the elementary school curriculum, general approaches to and specific teaching methods, techniques, and tools of instruction, pre-classroom clinical experiences of various kinds, student teaching, and a general consideration of the proposed teaching methods, tools, techniques, grouping practices and methods of individualizing instruction expected to be employed by the college faculty in presenting the various kinds of professional content to the prospective and in-service teachers.

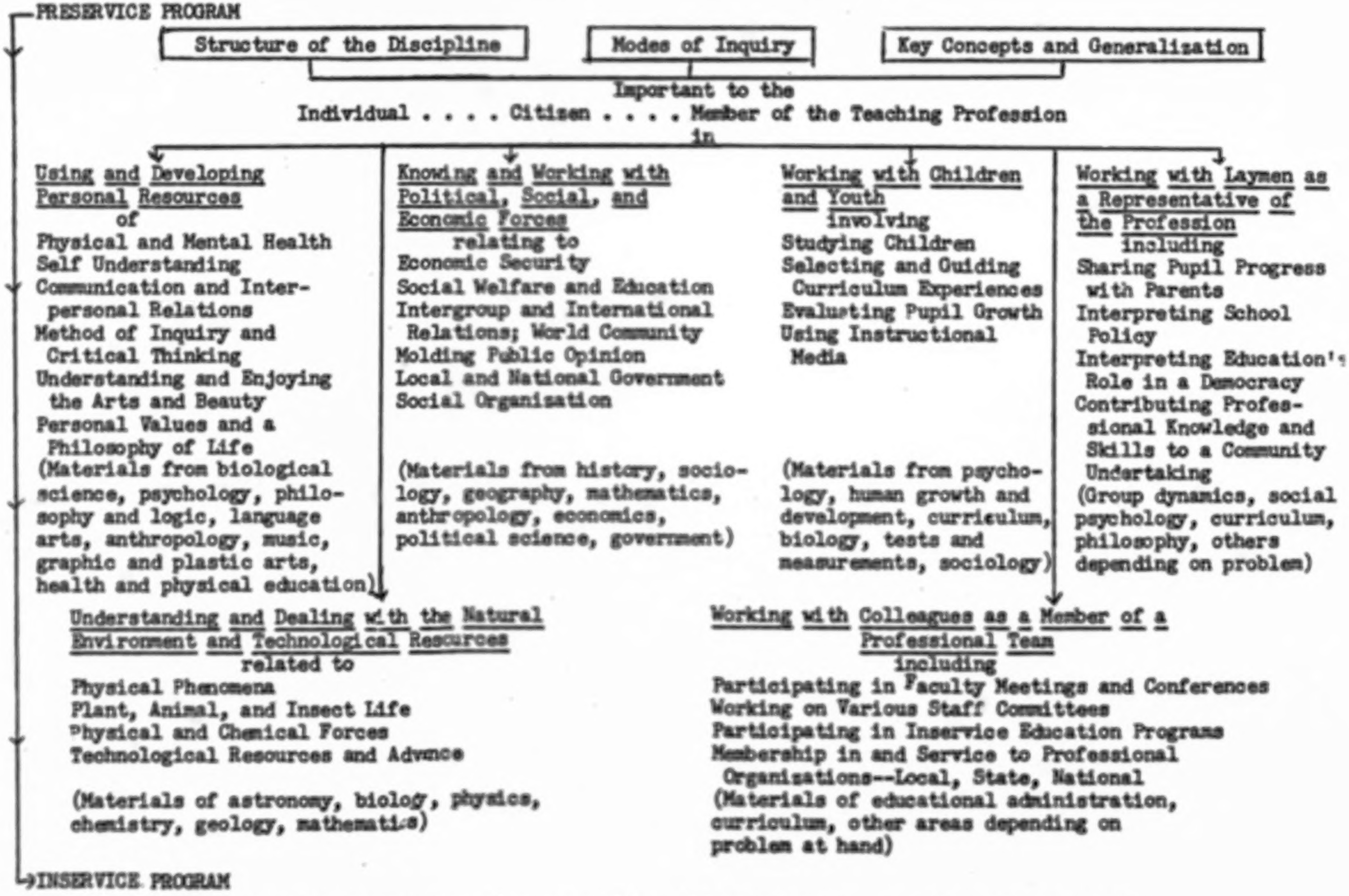
Forty-one of the proposals had statements undergirding the theory of elementary education instruction while only thirty-three of the seventy-eight proposals dealt specifically with the subject matter related to the elementary school curriculum. General approaches to instruction and specific teaching methods were indicated in thirty-eight out of the seventy-eight proposals while only twenty-six of the seventy-eight gave specific suggestions on grouping and individualized instruction for the prospective teachers. In this latter category, consideration was given to team teaching, some totally individualized instructional programs, utilization of small groups, frequent mention of seminars blending theory and practice, and fairly frequent mention of programed self-learning and self-pacing materials to be used in individualized instruction. As far as pre-classroom clinical experiences are concerned, sixty-three out of the seventy-eight proposals specified some kind of pre-student teaching or pre-internship of clinical experiences. Sixty-six out of seventy-eight proposals specified some detail on the proposed student teaching and/of internship component of the preparation program.

The remainder of this section summarizes some of the major elements in the models proposed by ten of the project proposals. While not all the explication is included, sufficient information is presented to indicate the general nature of some of the representative and unique proposals. In addition, more detailed information is found in the following chapter on the eight selected illustrative models.

Of course, the nine funded models will be specified in great detail when published.

Proposal twenty-eight developed the following figures for its total proposed pragram having both preservice and in-service components in terms of dimensions and areas of content and types of experiences.

Figure 2. Dimensions and Areas of Content



PRESERVICE PROGRAM

Structure of the Discipline | Modes of Inquiry | Key Concepts and Generalization

Important to the
Individual . . . . Citizen . . . . Member of the Teaching Profession
in

Using and Developing Personal Resources
of
- Physical and Mental Health
- Self Understanding
- Communication and Interpersonal Relations
- Method of Inquiry and Critical Thinking
- Understanding and Enjoying the Arts and Beauty
- Personal Values and a Philosophy of Life

(Materials from biological science, psychology, philosophy and logic, language arts, anthropology, music, graphic and plastic arts, health and physical education)

Knowing and Working with Political, Social, and Economic Forces
relating to
- Economic Security
- Social Welfare and Education
- Intergroup and International Relations; World Community
- Molding Public Opinion
- Local and National Government
- Social Organization

(Materials from history, sociology, geography, mathematics, anthropology, economics, political science, government)

Working with Children and Youth
involving
- Studying Children
- Selecting and Guiding Curriculum Experiences
- Evaluating Pupil Growth
- Using Instructional Media

(Materials from psychology, human growth and development, curriculum, biology, tests and measurements, sociology)

Working with Laymen as a Representative of the Profession
including
- Sharing Pupil Progress with Parents
- Interpreting School Policy
- Interpreting Education's Role in a Democracy
- Contributing Professional Knowledge and Skills to a Community Undertaking

(Group dynamics, social psychology, curriculum, philosophy, others depending on problem)

Understanding and Dealing with the Natural Environment and Technological Resources
related to
- Physical Phenomena
- Plant, Animal, and Insect Life
- Physical and Chemical Forces
- Technological Resources and Advance

(Materials of astronomy, biology, physics, chemistry, geology, mathematics)

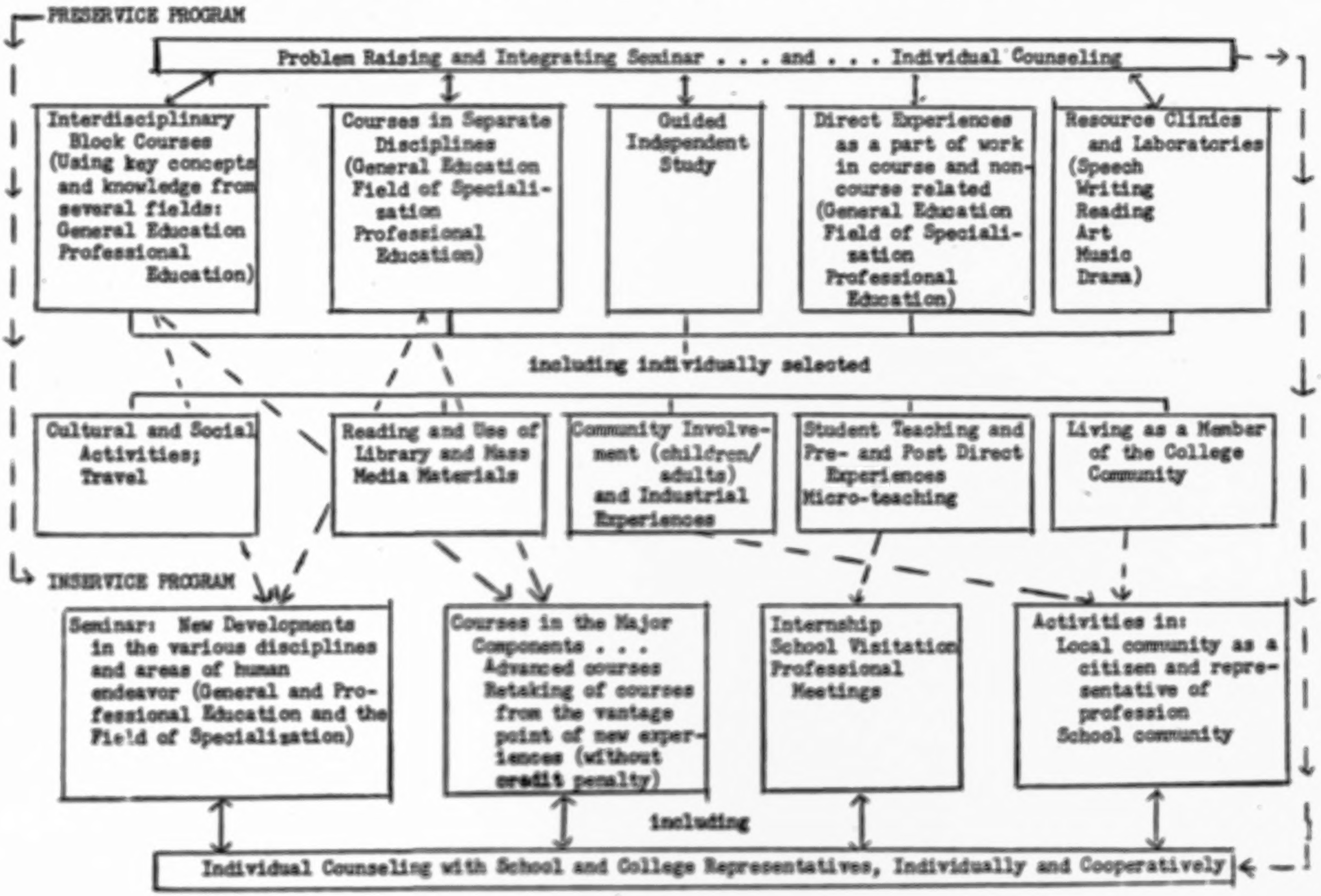
Working with Colleagues as a Member of a Professional Team
including
- Participating in Faculty Meetings and Conferences
- Working on Various Staff Committees
- Participating in Inservice Education Programs
- Membership in and Service to Professional Organizations--Local, State, National

(Materials of educational administration, curriculum, other areas depending on problem at hand)

INSERVICE PROGRAM

Work in above and related areas according to need in widening horizons and deepening insights.

Figure 3. Types of Experience: Course, Seminar, Direct Laboratory


PRESERVICE PROGRAM
Problem Raising and Integrating Seminar . . . and . . . Individual Counseling
Interdisciplinary Block Courses (Using key concepts and knowledge from several fields: General Education Professional Education)
Courses in Separate Disciplines (General Education Field of Specialization Professional Education)
Guided Independent Study
Direct Experiences as a part of work in course and non-course related (General Education Field of Specialization Professional Education)
Resource Clinics and Laboratories (Speech Writing Reading Art Music Drama)
including individually selected
Cultural and Social Activities; Travel
Reading and Use of Library and Mass Media Materials
Community Involvement (children/adults) and Industrial Experiences
Student Teaching and Pre- and Post Direct Experiences Micro-teaching
Living as a Member of the College Community
INSERVICE PROGRAM
Seminar: New Developments in the various disciplines and areas of human endeavor (General and Professional Education and the Field of Specialization)
Courses in the Major Components . . . Advanced courses Retaking of courses from the vantage point of new experiences (without credit penalty)
Internship School Visitation Professional Meetings
Activities in: Local community as a citizen and representative of profession School community
including
Individual Counseling with School and College Representatives, Individually and Cooperatively

Proposal seventy-one divided its program for four calendar years of five academic years into the academic, professional, and specialization components.

Program:

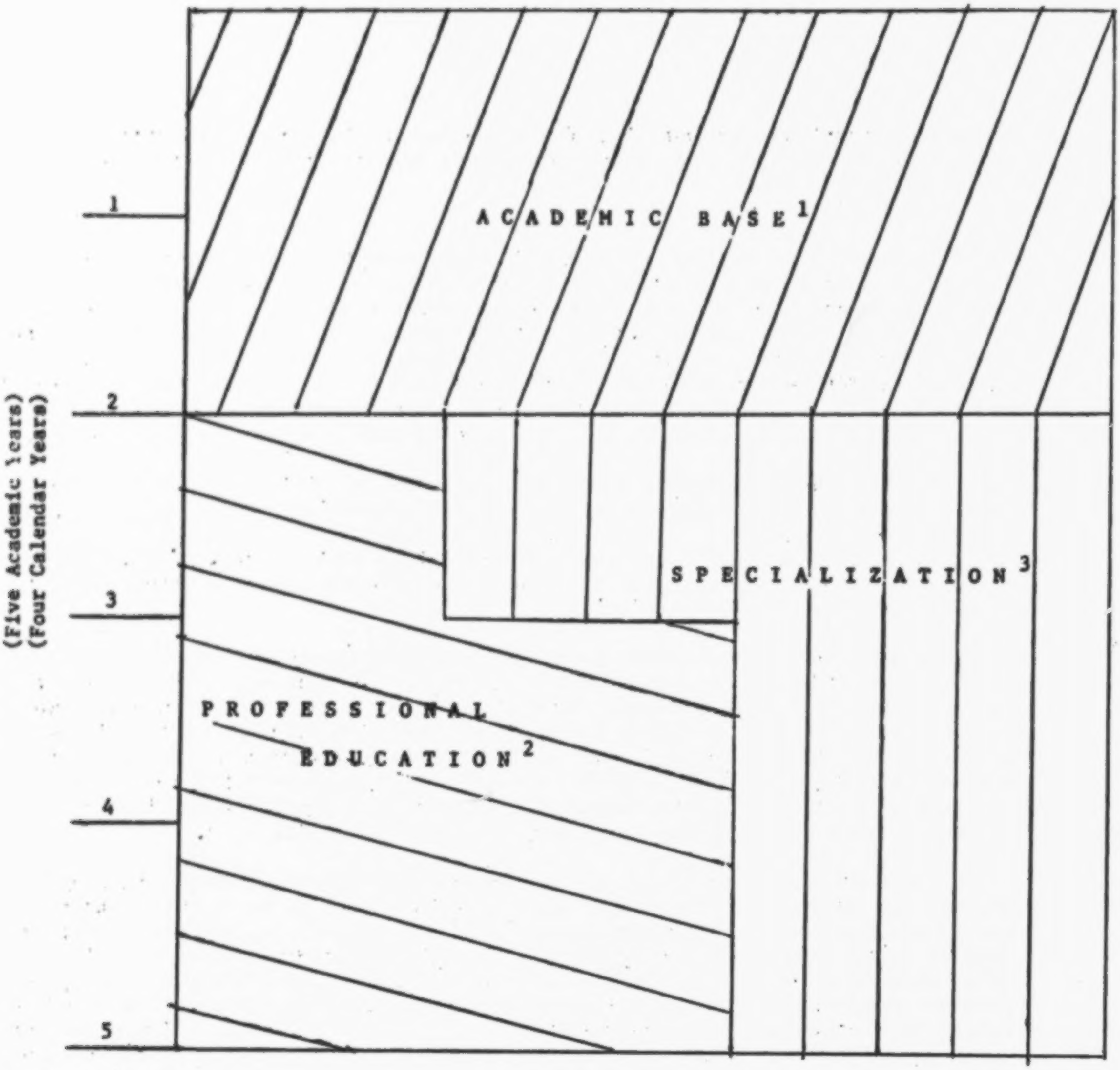
"To amplify the schematic diagram the program may be thought of as containing three distinct but closely related elements. The program and sequencing of events are predicated on the selection of students no later than the end of the first year of collegiate work. During the first phase (academic base) the primary emphasis is on the development of an adequate understanding of language, the social, physical and biological sciences, and mathematics. In keeping with our model, however, the emphasis in the latter half of this phase of preparation shifts to the social and behavioral sciences.

"The second major element emphasizes a specialization in a teaching content area; the third focuses on the professional component.

"Our rationale for the professional education aspect of this proposal assumes that at the present time typical teacher behavior demonstrates a lack of precision and analytical behavior.

"Teachers apparently behave in a random manner without true awareness of the kinds of behavior that they display or without any true basis for their decision making in the classroom. To cope with this shortcoming, it would appear that more analytic models for teaching and, in turn, decision making must find their way into a pre- and ideally in-service program for teachers. Further, after the conceptualization of various models has occurred, the future teacher must move from theory into practice and actually experience the models in controlled laboratory and intern situations.

"There are many significant conceptual models developed through research and present in the literature today which can add precision to teaching behavior and thus make teachers more aware of their functions in the classroom (see Verduin, *Conceptual Models in Teacher Education*). These models plus other significant ideas must be identified and placed in an elementary preparatory program in a logical and consistent fashion and be structured so as to permit the development of adequate skills for decision making. An example would be the Aschner-Gallagher Model on productive thinking (23) or Suchman's Model on Inquiry (23). These models could be conceptualized at the theoretical level, observed at the clinical level and then put into practice at the laboratory level. In this case the cybernetic cycle of sensory intake, concept formation, decision making, and trial would be complete to insure that the appropriate behavior is developed during the professional component phase. Thus, the major thrust of the professional phase of the program would be: theoretical study, clinical observation, laboratory testing and actual [illegible] practice, a movement away from an intuitive basis to a more analytical models approach.

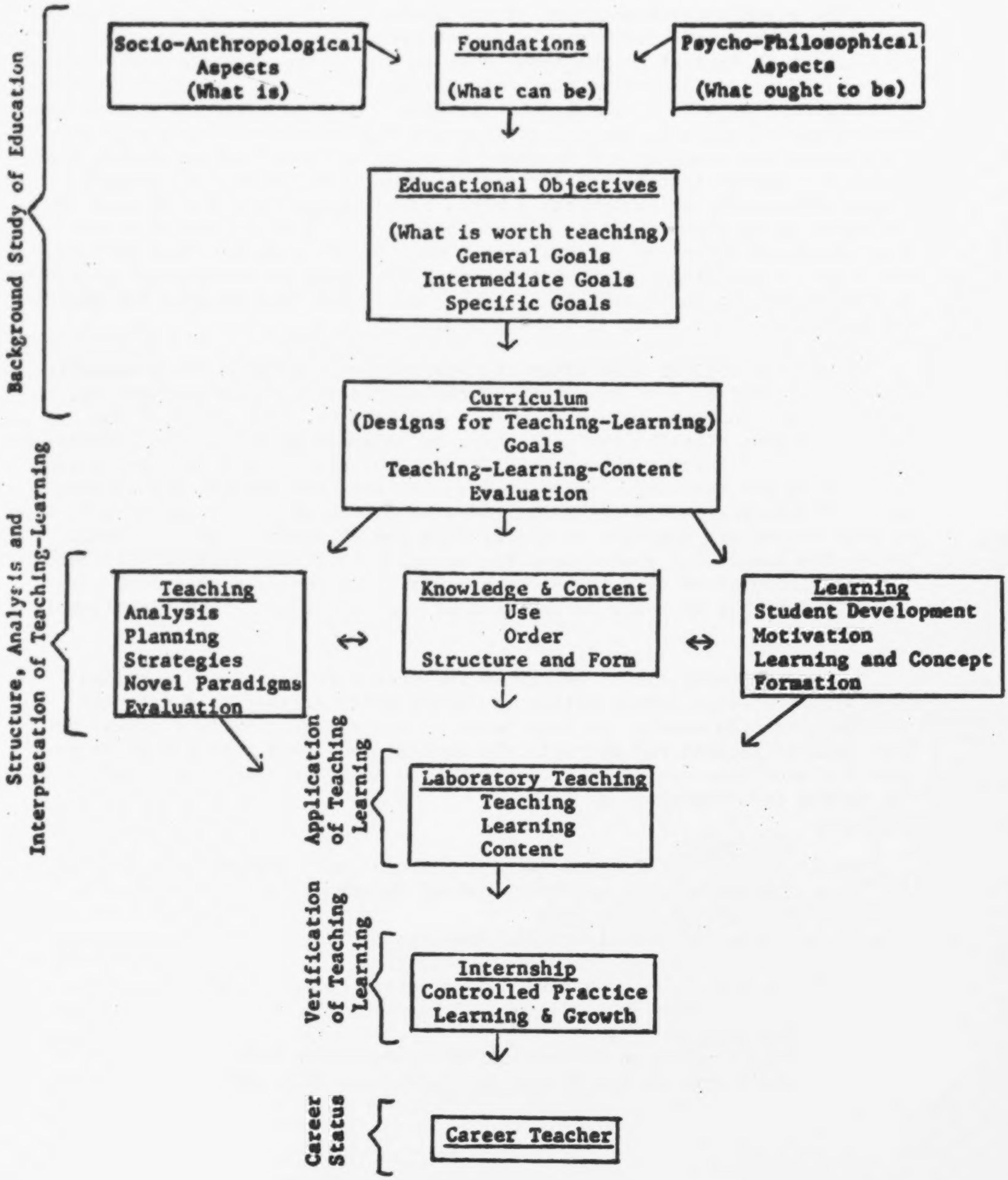

ACADEMIC BASE[1]
SPECIALIZATION[3]
PROFESSIONAL EDUCATION[2]
1
2
3
4
5
(Five Academic Years)
(Four Calendar Years)

[1] **Academic Base includes:** Language and communication skills, humanities, and fine arts, mathematics, physical and biological sciences, social sciences.

[2] **Professional Component includes:** Background Study of Education (3rd year); Structure, Analysis, and Interpretation of Teaching-Learning and Laboratory Teaching (4th year); and Internship in Public Schools (5th year).

[3] **Specialization Area includes:** Area of specialization, i.e., science, mathematics, etc.

The Teacher Education Process


Background Study of Education
Socio-Anthropological Aspects (What is)
Foundations (What can be)
Psycho-Philosophical Aspects (What ought to be)
Educational Objectives
(What is worth teaching)
General Goals
Intermediate Goals
Specific Goals
Curriculum
(Designs for Teaching-Learning)
Goals
Teaching-Learning-Content
Evaluation
Structure, Analysis and Interpretation of Teaching-Learning
Teaching
Analysis
Planning
Strategies
Novel Paradigms
Evaluation
Knowledge & Content
Use
Order
Structure and Form
Learning
Student Development
Motivation
Learning and Concept Formation
Application of Teaching Learning
Laboratory Teaching
Teaching
Learning
Content
Verification of Teaching Learning
Internship
Controlled Practice
Learning & Growth
Career Status
Career Teacher

"The graphic representation of the analytical-logical model indicates the flow of areas of study from basic interpretative study to actual career status. It is logical in the sense that it starts from a basic background study of education including the socio-psychological-anthropological and the philosophical aspects of education which are then translated into educational objectives. The educational objectives are viewed as the first stage in the designs for teaching and learning which is the curriculum. Within these areas, the future teacher will critically examine the cultural, social, psychological, and philosophical aspects of education in order to make some judgments about what education can and should be. This is viewed as an examination of value and event theory. Once these judgments have been made, they will be translated into what is worth teaching, or educational objectives. From here what is worth teaching is then translated into designs for teaching and learning. This then, is the curriculum.

"The next logical move after the curriculum study then is to investigate the activities broadly stated in the curriculum. This is teaching, knowledge and content, and learning and development. The study of the curriculum thus dictates the next three major areas in the teacher education program. These three areas are the structure, analysis, and interpretation of teaching and learning. Once these areas have been defined and studies at the theoretical and observed at the clinical level, the movement will then be into laboratory teaching or the application of teaching and learning. During the internship phase in public schools the future teacher will look at the principles of educational research and curriculum development work and will continue to learn in the area of teaching content and educational principles.

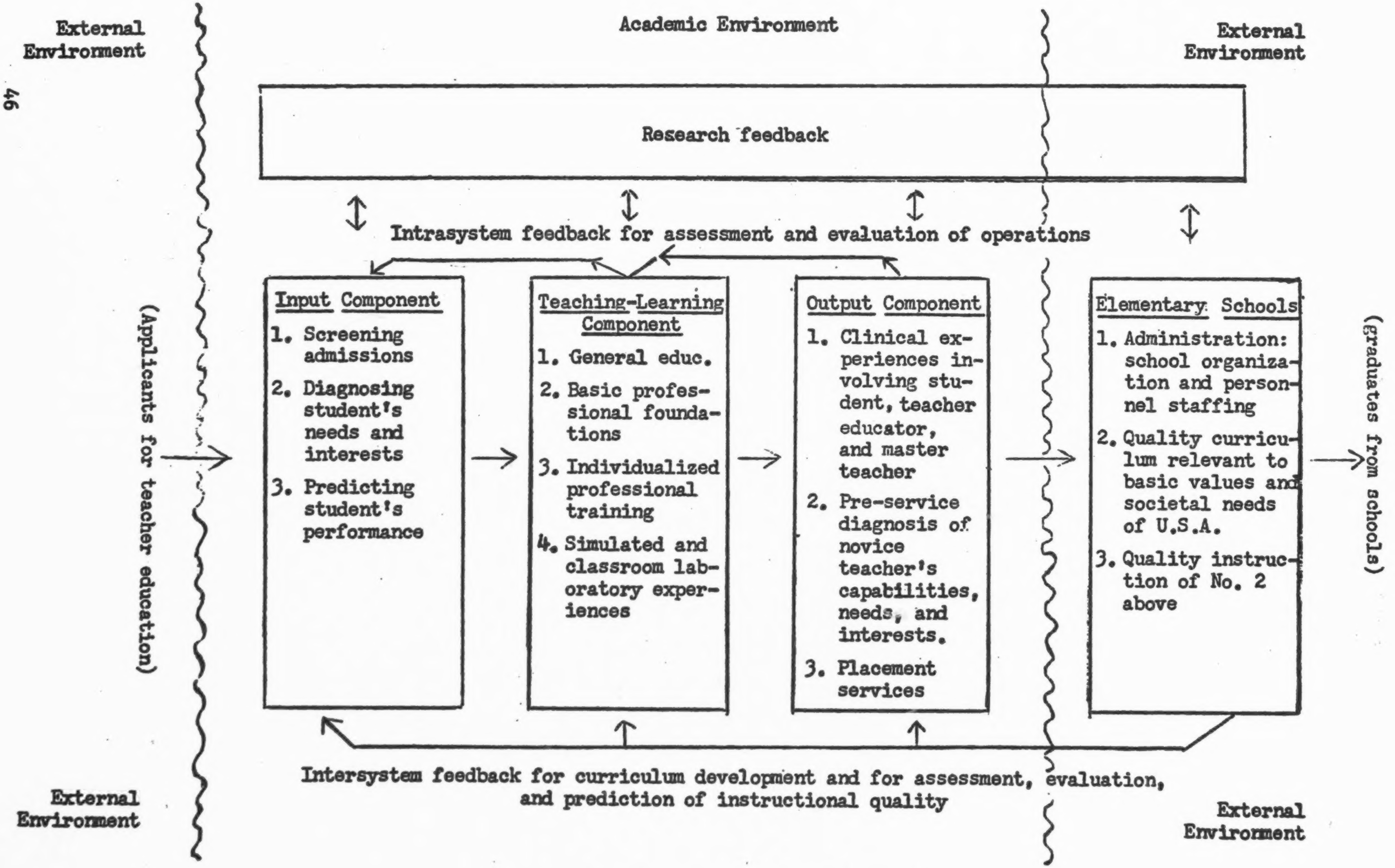
"The model analytic in nature in the fact that it presents various models for decision making within the major areas defined in the larger teacher education model. At this point in our thinking various models have been identified that may fit into the general model and that appear to provide the precision deemed desirable for more analytic teaching. Some of the models are identified as follows:

Foundations
Getzels' model on Social Systems and Goal Behavior (23)
Kneller's model on Philosophical Factors (11)
Educational Objectives
Krathwohl's model on Goal Statements (23)
Mager's work on Behavioral Goals (17)
Taxonomies on Cognitive and Affective Goals (4, 13)
Gagne's work on Conditions of Learning (7)
Curriculum
Taba's model on Elements of the Curriculum (22)
Lee's work on the Elementary Curriculum (15, 16)

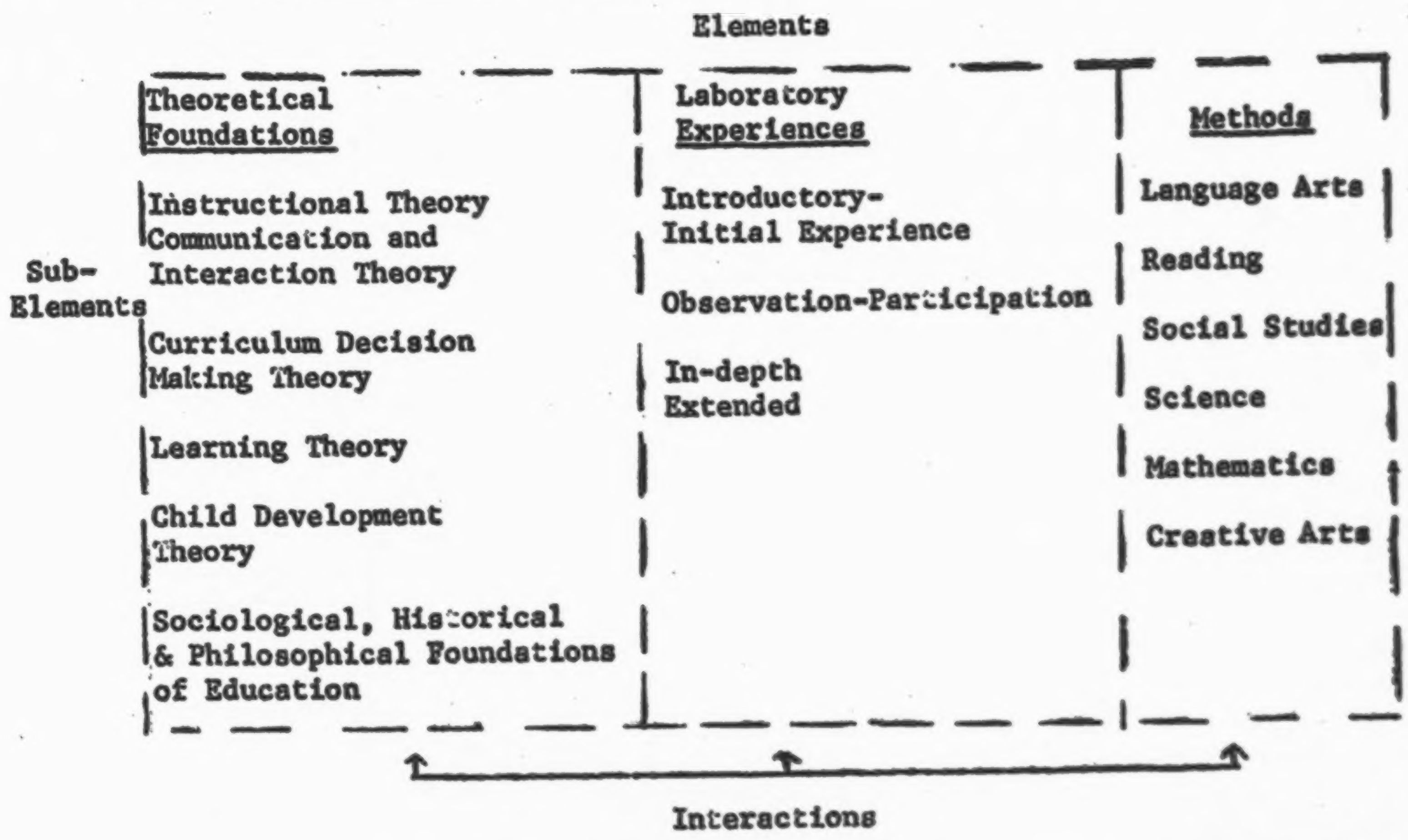
Teaching
Woodruff's model on Learning Unit Design (23)
Galloway's model on Non Verbal Behavior (8)
Flander's model on Interaction Analysis (23)
Taba's model on Teaching Strategies and Cognitive Growth (23)
Aschner - Gallagher model on Productive Thinking (23)
Smith's work on Logical Dimensions and Strategies (21, 23)
Bellack's work on Language in the Classroom (23)
Suchman's work on Inquiry Training (23)
Gage's work on Paradigms (6,23)
Krathwohl's and Bloom's work on Evaluation of Goals (4, 13)
Knowledge and Content
Broudy's model on Uses of Knowledge (23)
Hickey's model on Logical Order (23)
Bruner's work on Structure, Form and Economy (10)
Learning
Woodruff's model on Concept Formation (23)
Gagne's model on Conditions of Learning (7)
Sear's work on Motivation (10)
Lee's Work on Child Growth and Development (14, 16)
Laboratory Teaching
A Modification of the Micro-Teaching Concept (1, 2)
A Modification of Simulation (5)
Other ideas on Newer Media and Teacher Education (20)
Internship
Work by Casey on Student Teaching (12)
Work on L. O. Andrews (3)
Verduin's model on Curriculum Improvement (24)
Good's Work on Research (8)
Career Teacher
Work of NCTEPS on Career Teacher (18, 19)

"At this point then, the major models for decision making have in part been identified. The concern now is to integrate them into the total model, develop materials, and provide experiences for the conceptualization of them. Movement from the theoretical level to the practical would be the final concern."

Proposal number thirty-three offered a cybernetic model for teacher education indicating the interactions between the various elements of the total program and illustrating two separate kinds of experience patterns that might evolve.

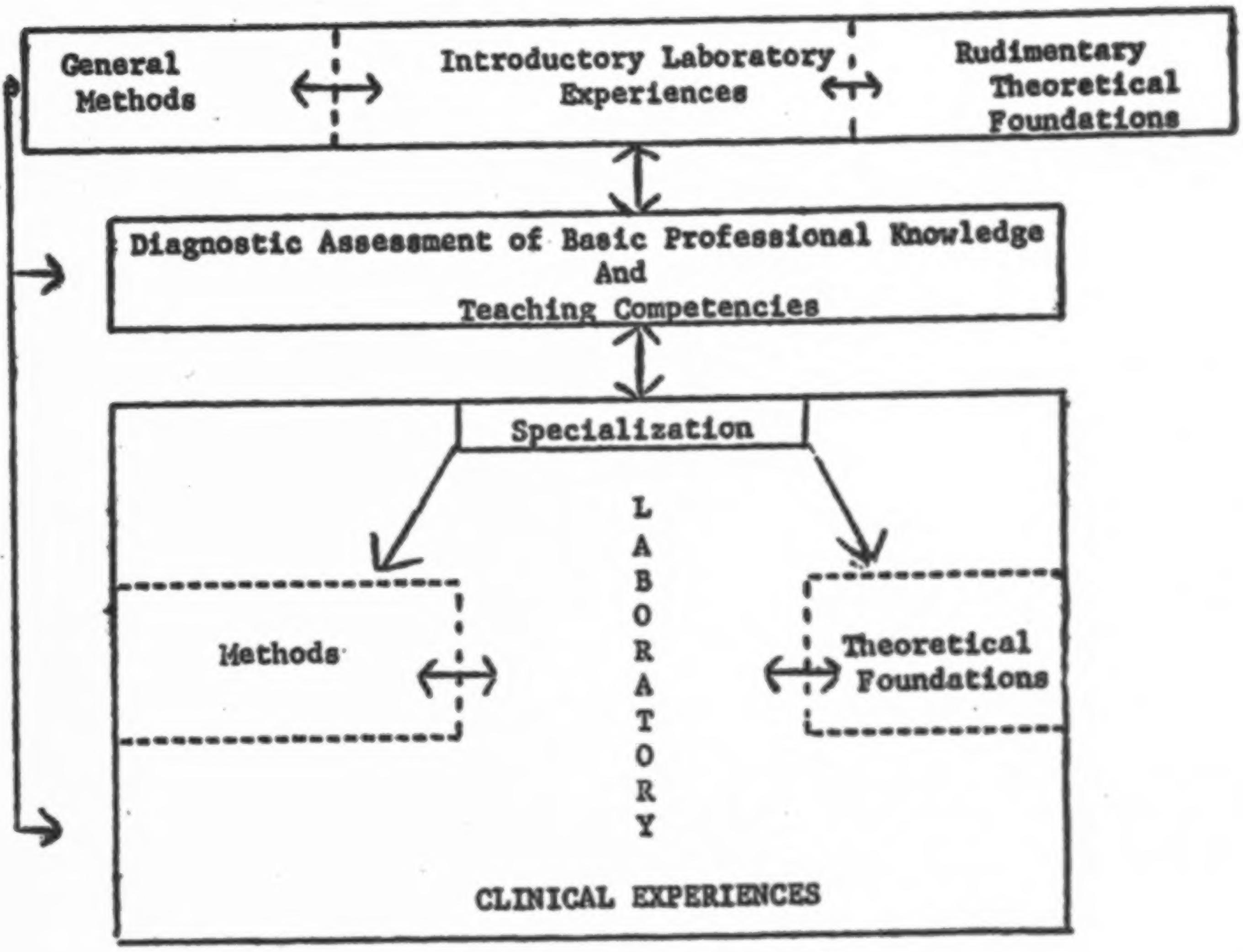

External Environment
Academic Environment
External Environment
Research feedback
Intrasystem feedback for assessment and evaluation of operations
(Applicants for teacher education)
Input Component
1. Screening admissions
2. Diagnosing student's needs and interests
3. Predicting student's performance
Teaching-Learning Component
1. General educ.
2. Basic professional foundations
3. Individualized professional training
4. Simulated and classroom laboratory experiences
Output Component
1. Clinical experiences involving student, teacher educator, and master teacher
2. Pre-service diagnosis of novice teacher's capabilities, needs, and interests.
3. Placement services
Elementary Schools
1. Administration: school organization and personnel staffing
2. Quality curriculum relevant to basic values and societal needs of U.S.A.
3. Quality instruction of No. 2 above
(graduates from schools)
Intersystem feedback for curriculum development and for assessment, evaluation, and prediction of instructional quality
External Environment
External Environment

Cybernetic Model for Teacher Education
Figure 3


Elements
Theoretical Foundations
Laboratory Experiences
Methods
Sub-Elements
Instructional Theory
Communication and Interaction Theory
Curriculum Decision Making Theory
Learning Theory
Child Development Theory
Sociological, Historical & Philosophical Foundations of Education
Introductory-Initial Experience
Observation-Participation
In-depth Extended
Language Arts
Reading
Social Studies
Science
Mathematics
Creative Arts
Interactions

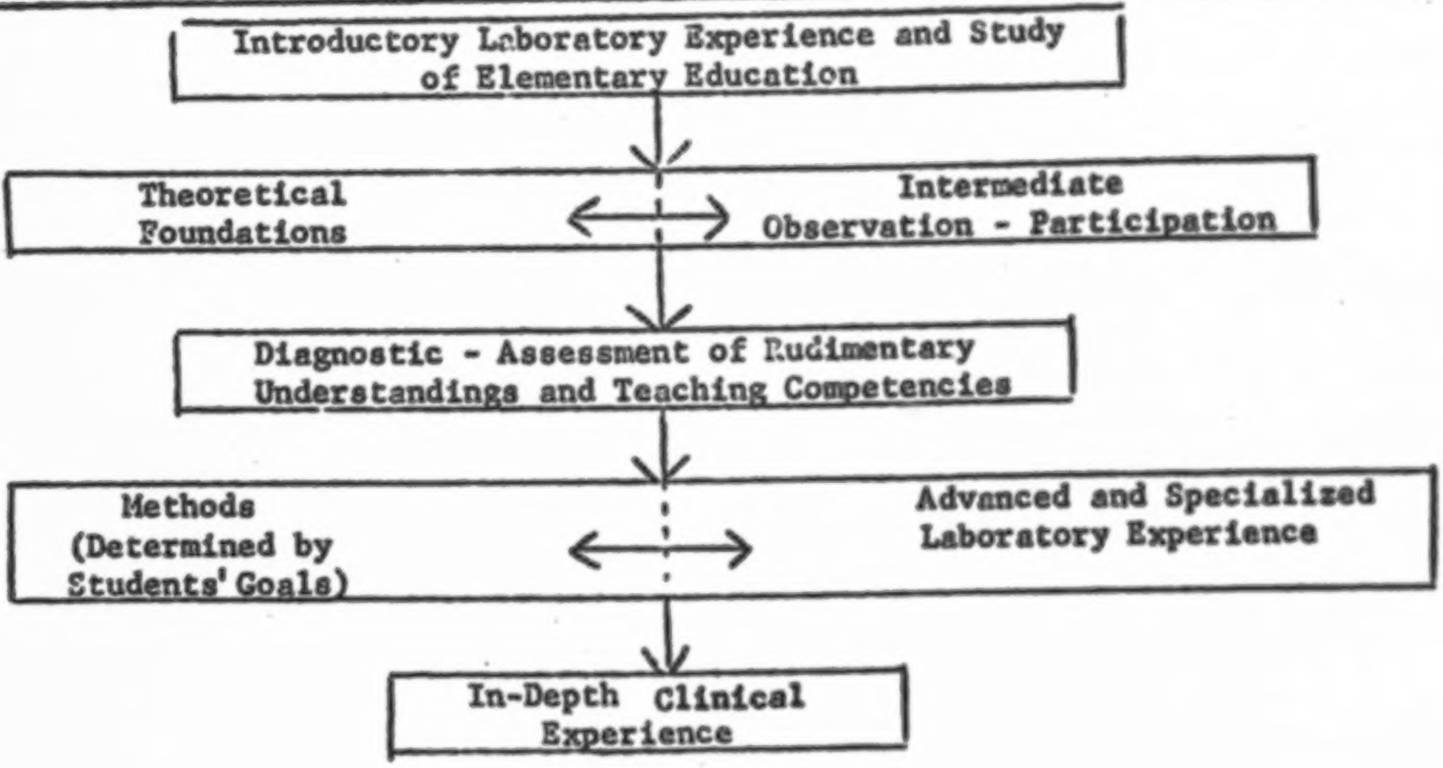
Sub-elements, Elements, and Interactions Among Elements Within the Teaching-Learning Component of the Individualized Elementary Teacher Education Program

Figure 4


General Methods
Introductory Laboratory Experiences
Rudimentary Theoretical Foundations
Diagnostic Assessment of Basic Professional Knowledge And Teaching Competencies
Specialization
Methods
L A B O R A T O R Y
Theoretical Foundations
CLINICAL EXPERIENCES

Illustrative Pattern #1

Figure 5


Introductory Laboratory Experience and Study of Elementary Education
Theoretical Foundations
Intermediate Observation - Participation
Diagnostic - Assessment of Rudimentary Understandings and Teaching Competencies
Methods (Determined by Students' Goals)
Advanced and Specialized Laboratory Experience
In-Depth Clinical Experience

Illustrative Pattern #2

Figure 6

Proposal sixty-nine developed a five phase program for teacher preparation beginning with lower division training and culminating with a fifth year of student teaching and selected course work to supplement any or all of the other phases.

"A. Phase One: Participation in a community service project (playground supervisor, study center tutor, camp counselor, Scouts leader, Sunday school teacher, etc.) when the trainee is a sophomore in the junior or four-year college. The trainee will be encouraged to work with children and youth of different age levels and cultural backgrounds. Supervision of this phase of experience will be the responsibility of a coordinator of community service projects, either at the junior college level, the four-year college level, or both. (A non-credit experience.)*

B. Phase Two: Supervised participation in a series of structured school activities, to give the trainee an opportunity to observe and to participate in various types of organization plans and to various programs of the school (ungraded, multi-graded, team-teaching, Head Start, library or materials center, etc.). Each trainee will be registered concurrently in a seminar for the study of current trends and problems of American education. Faculty members from the college and public school personnel will be involved in the conduct of the seminar and in the supervision of the participation. (Junior Year.)*

C. Phase Three: Involvement as a classroom teacher's assistant in actual teaching at one level, grades 1 through 9. Accompanying this experience will be a seminar to study instructional approaches (micro teaching, simulation, lesson planning, uses and development of materials, etc.), conducted by faculty members and public school personnel. (Senior Year.)*

D. Phase Four: Specific courses related to the subject matter of the elementary school curriculum. Since all students at this college are required to present evidence of forty-five units of general education (social sciences, English and speech, natural and physical sciences, fine arts, mathematics, physical education and health) and an academic major and minor to qualify for a credential, the specific professional subject matter courses required of an individual trainee will vary according to the needs. It is not intended that each trainee will follow an identical pattern of courses in methods and content of the elementary curriculum; rather, the student's self-evaluation and evaluation by the Faculty of the School of Education will determine those courses which the student must take before he enters his student teaching.

The major experience of Phase Four will be a semester of supervised student teaching, occuring during the graduate year, at a level selected by the student. Accompanying the student teaching experience will be a seminar on the problems of classroom teaching, conducted at the college by faculty members, master teachers, and supervisors.

---

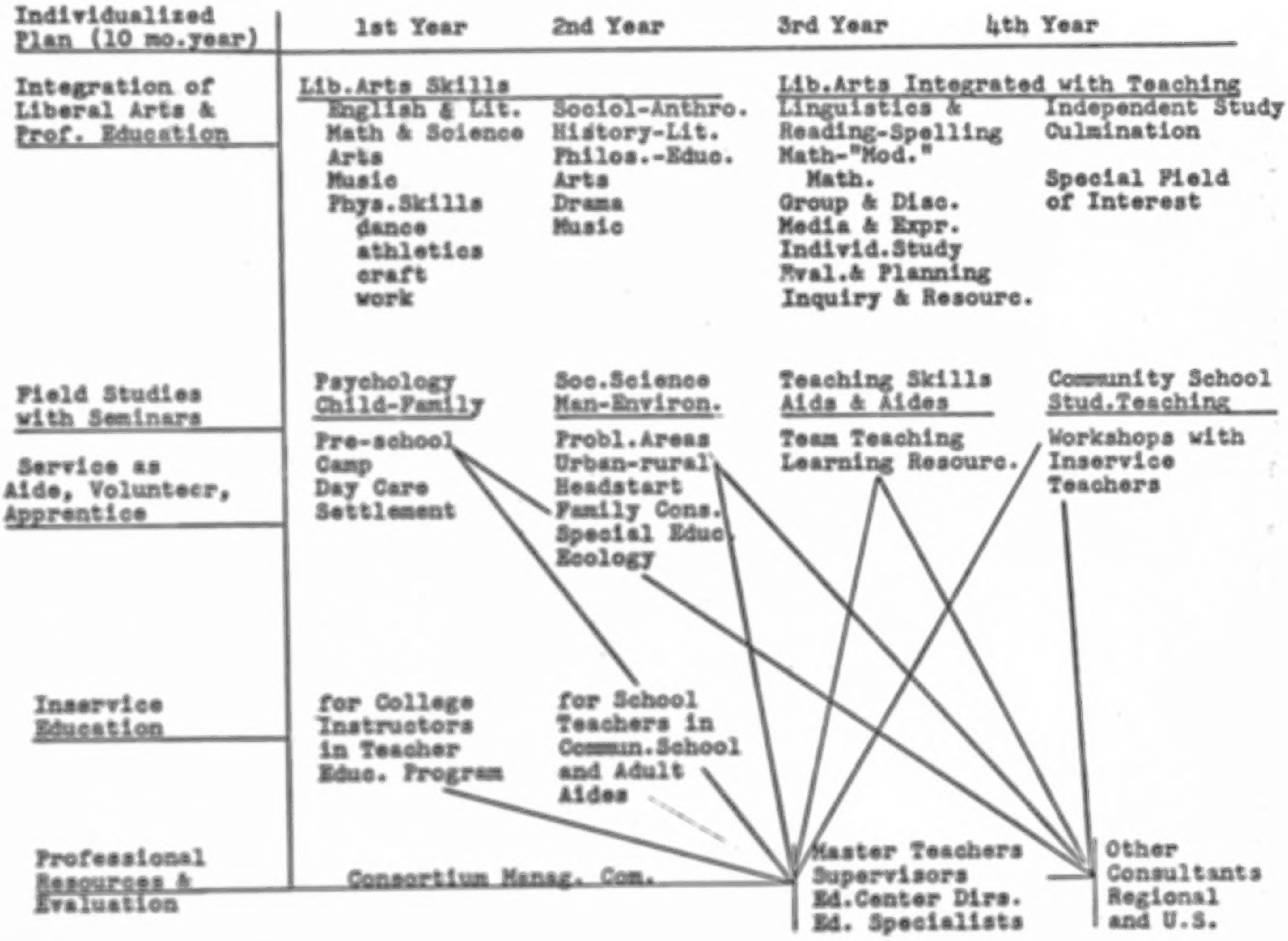
* Author's additions.

E. Phase Five: During the final graduate semester, the trainee will take a course in the socio-psychological foundations of education. This course will provide an opportunity for the student to relate his experiences from the first four phases of observation and participation to theories of learning, sociological factors, community studies and theories of child development.

During this final semester, the trainee will have an opportunity, under the guidance of faculty members, to select additional course work to supplement areas of weakness in content areas, to supplement weakness in instructional techniques, and to develop strengths for specialization. It is possible that studies pursued during Phase Five may be used to satisfy, partially, the requirements for the M.A. degree in education."

Heavily rooting its proposal in the liberal arts number forty-four presented a four year program.

COLLEGE INSTRUCTIONAL PLAN



Individualized Plan (10 mo.year)	1st Year	2nd Year	3rd Year	4th Year
Integration of Liberal Arts & Prof. Education	Lib.Arts Skills English & Lit. Math & Science Arts Music Phys.Skills dance athletics craft work	Sociol-Anthro. History-Lit. Philos.-Educ. Arts Drama Music	Lib.Arts Integrated with Teaching Linguistics & Reading-Spelling Math-"Mod." Math. Group & Disc. Media & Expr. Individ.Study Eval.& Planning Inquiry & Resourc.	Independent Study Culmination Special Field of Interest
Field Studies with Seminars	Psychology Child-Family	Soc.Science Man-Environ.	Teaching Skills Aids & Aides	Community School Stud.Teaching
Service as Aide, Volunteer, Apprentice	Pre-school Camp Day Care Settlement	Probl.Areas Urban-rural Headstart Family Cons. Special Educ. Ecology	Team Teaching Learning Resourc.	Workshops with Inservice Teachers
Inservice Education	for College Instructors in Teacher Educ. Program	for School Teachers in Commun.School and Adult Aides		
Professional Resources & Evaluation	Consortium Manag. Com.		Master Teachers Supervisors Ed.Center Dirs. Ed. Specialists	Other Consultants Regional and U.S.

This and the following three pages show proposal number forty-two's development of a four year program.

FRESHMAN YEAR

Studies	Team Members (by dept.)	Practicum
-------	-------	September experience where possible
English language & composition	English	Observation and participation
Language & literature of children	Education	in Child Care centers or
Foreign language study	Modern Language	nursery schools.
Foreign Language		*Participation in student
1 Science		tutoring program (e.g.,
1 Literature		Lighted School)
Foreign Language		*Observation of elementary
Arts/Crafts	Art Education	classrooms in "regular schools",
Basic Psychology	Psychology	and for the retarded.

At this point, the student will have completed approximately one-third of institutional requirements and one-fourth of professional course work. New students could be admitted to the special program at this point since they could still achieve the minimum 7 terms of practicums.

SOPHOMORE YEAR

Studies	Team Members (by dept.)	Practicum
1 History (U.S.)	History	*Demonstration lessons.
Music for Elementary School	Education	Visits to Social Agencies
Intro Sociology	Sociology	Preparation of resource units
Education Psychology	Education	Participation in local recreational
Early Childhood Development	Psychology	groups (e.g., teen clubs)
HPE (Play & Games)	Consulting School Psychologist or Counselor	
Modern Mathematics	Mathematics	Simulated teaching
Teaching of Elementary Math.	Education	Construction of resource units.
1 Literature		Micro teaching

At this point, the student will have completed approximately one-half of both institutional and professional requirement.

There will definitely be no admission of candidates beyond this point unless the student declares an intention to remain in the program for a minimum of seven terms, thereby extending the four-year sequence. The remaining studies will be heir to greater flexibility - both in choice and combination of courses. However, much latitude might characterize any one individual's program, an example of a program is included for the junior and senior years.

Studies	Team Members (by dept.)	Practicum
JUNIOR YEAR		
Political Science Geography Child or Adolescent Psychology		*Audio-video - taping and viewing of taped lessons (self and others)
Teaching Science & Social Studies Teaching Reading	2 Education	Observation in Reading Clinic or other remedial center.
U.S. History	History	
Science Social Ethics Sociology of the School		*Independent Case Work

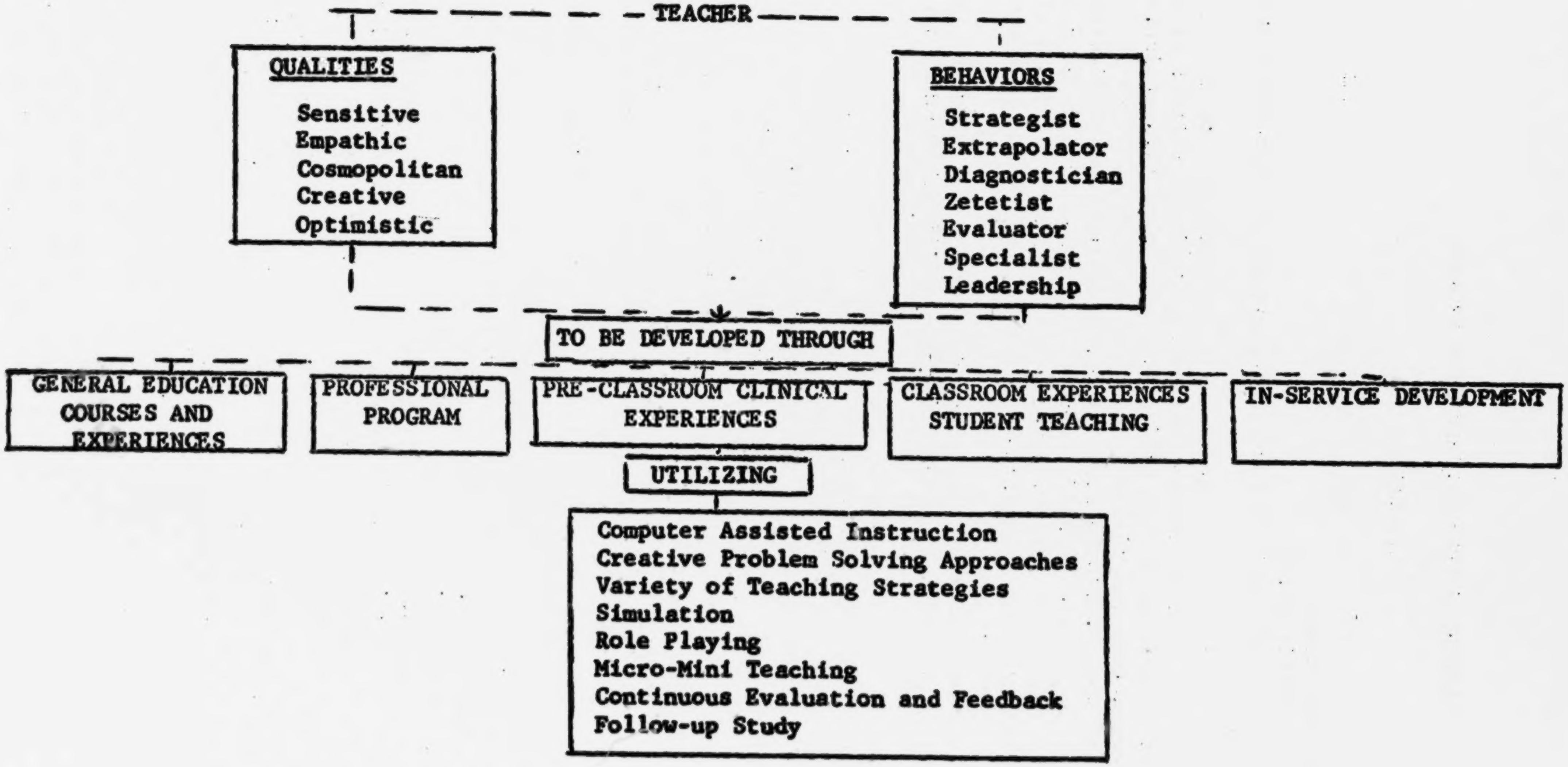
SENIOR YEAR

Studies	Team Members (by dept.)	Practicum
Non-western Culture Anthropology Fine Arts		*Assigned classroom observation as pre-student teaching experience.
School & Society (seminar in Social-Philosophical Implications of American Education	Supervisory Team (college & p.s.)	
Student Teaching at either or both, early and late elementary levels		
Specialized or Independent Study Programs	2 Education (minimum)	*Tutoring in Reading Center

* Experiences to be selected not in any specific term but when student progress indicates maximum growth and benefit would result. At least seven of 12 terms or 5 of 8 semesters must include a practical experience.

Proposal sixty-six developed its prospects in the following diagram and set forth the following procedures for planning its program.

IX. PROSPECTUS FOR TEACHER-TRAINING PROGRAM


TEACHER
QUALITIES
Sensitive
Empathic
Cosmopolitan
Creative
Optimistic
BEHAVIORS
Strategist
Extrapolator
Diagnostician
Zetetist
Evaluator
Specialist
Leadership
TO BE DEVELOPED THROUGH
GENERAL EDUCATION COURSES AND EXPERIENCES
PROFESSIONAL PROGRAM
PRE-CLASSROOM CLINICAL EXPERIENCES
CLASSROOM EXPERIENCES STUDENT TEACHING
IN-SERVICE DEVELOPMENT
UTILIZING
Computer Assisted Instruction
Creative Problem Solving Approaches
Variety of Teaching Strategies
Simulation
Role Playing
Micro-Mini Teaching
Continuous Evaluation and Feedback
Follow-up Study

PLANNING A TEACHER EDUCATION PROGRAM

PROCEDURE

I. Determining Objectives
  A. Collect behavior items.
    1. Collect from research what good teachers do that other teachers do not do.
    2. Collect a list of things that all teachers must be able to do.
    3. Collect a list of things that all teachers in certain situations must be able to do (no special music teacher, team-teaching, etc.)
  B. Organize A. into one outline.
  C. Take each item of A. and identify immediate prerequisite skills.
  D. Do the same for the results of C, and so on, until you get a complete hierarchy such that the lowest level skills can be achieved with no prerequisites other than entrance into college or the teacher education program.
  E. Refine the hierarchy organization to identify all relationships of prerequisites. (Model: AAAS SCIENCE - A PROCESS APPROACH Hierarchy Chart)

II. Determining Methods of Achievement
  A. Develop lowest level activities.
    1. For each lowest level objective, determine specific activities that will develop the behavior. List the full choice of activities that can be used for each objective.
  B. Do the same for each other level, assuming that all prerequisites have been met.
  C. Identify the knowledge applied to the execution of the activity. Identify the sources of such knowledge available to the student.

III. Determining organization for the student to use facilities to learn and to be checked out on skills.
  A. Organize independent learning activities.
    1. Determine which objectives can be achieved by the teacher trainee simply through his use of material resources (no personal direction or organization needed).
    2. Determine the most convenient way to make those material resources available (including written and/or recorded directions; syllabi, auto-tutorial devices, etc.).
    3. Establish procedures for consultation.
  B. Group all other activities according to one or more criteria, such as:
    1. Those using the most similar knowledge together.
    2. Arrangement in order of ease of development of skills.
    3. Those which in some way would make sense to the student to be put together.
    4. Those that should be worked on earliest because their hierarchal string is the longest in predicted time for achievement.
  C. Organize dependent learning activities.
    1. Plan organization of the B. activities such that the human and physical resources can be most effectively available to the teacher trainees (courses, field experiences, open laboratories, independent study projects, etc.).
    2. Establish procedures for checkout of achievement.

D. Establish procedures to be checked for admission into an organizational system (a checkout on the prerequisites for the skills developed in that system).

IV. Determining procedures for terminal evaluation and reporting
   A. Plan a recording form (check-list, transcript form, etc.) with the terminal behaviors for the academic records of the student and a form for inclusion in his credentials for prospective employers.
   B. Specify procedures for having the forms kept up to date.
   C. Specify criteria and procedures for determining eligibility for graduation."

Proposal number thirty-five contained the following features:

1. A school-university partnership.
2. Behavioral science orientation-anthropology, sociology, psychology, and political science.
3. Inductive approach to teacher education.
4. Committed candidates with career aims to teach in inner-city schools.
5. Intern-master teacher teaching teams.
6. Clinical professors from inner-city schools.
7. Inner-city schools base.
8. Modified professional teaching conditions.
9. Adapted curricular materials.
10. Home and community contact.
11. One adult to ten students.
12. Broad-based teacher recruitment.
13. Coordinated preservice and in-service program.

Proposal number twenty-seven presented a model for preservice preparation of teachers through a five step process ending in continuing education in teaching.

APPENDIX C

A MODEL FOR THE PRESERVICE PREPARATION OF TEACHERS

<table>
<tr><td>Step 1
Early Engagement and Awareness
Personal and Professional Decision Making</td><td colspan="4">The Educational Environment
Designed to help prospective teachers (1) become aware of the diverse kinds of children attending public schools, (2) become acquainted with school and community services available to children and their families, (3) become acquainted with the likenesses and differences which exist among families, (4) make decisions regarding career goals and professional needs.</td><td rowspan="4">General Education</td></tr>
<tr><td>Step 2
Professional Knowledges and Skills</td><td>Study of Children
Designed to help students to understand children's behavior. Activities will include observations, case study, child supervision and seminars.</td><td>Study of Self and Self Concept Attitudes and Attitude Formation
To acquaint the student with knowledge about himself, his attitudes, values, etc. How self-concepts are formed. Activities include study of selected children who are alienated, determination of causes of alienation and projection of courses of action available to help such individuals.</td><td>Study of Human Learning
Designed to (1) investigate classroom learning including the identification of principles of human learning which should be applied to teaching, (2) provide an opportunity for the diagnosis and prescription of the learning needs of an educationally disadvantaged child.</td><td>Study of Curriculum I
Self-instructional modules designed to acquaint students with professional problems and alternatives. Topics among others will include (1) deciding what to teach (2) organizing for teaching (including alternative arrangements for teaching and classroom organization), (3) individualizing instruction and so forth.</td></tr>
<tr><td>Step 3
Theory into Practice</td><td>Microteaching
A laboratory experience in which students teach abbreviated lessons to small groups of children practicing establishing set, questioning, closure and so forth. The microteaching component would be established in one or more public schools.</td><td>Simulation
A setting in which preservice students would be engaged in developing alternative solutions to critical teaching problems presented in a simulated school environment.</td><td>Analysis of Teaching
A laboratory experience in which students study the effects of verbal and nonverbal influence on learner behavior.</td><td>Study of Curriculum II
Self-instructional modules designed to acquaint students with the more practical dimensions of teaching as (1) stating behavioral objectives, (2) lesson and unit planning, (3) evaluating learning, (4) teaching reading and so forth.</td></tr>
<tr><td>Step 4
Professional Practice</td><td colspan="4">Student Teaching
Teaching experience as a team member in schools which provide a breadth of experience with both advantaged and disadvantaged children.</td></tr>
<tr><td>Step 5
Continuing Education in Teaching</td><td colspan="4">Professional Development
Designed to provide continued university support for the first, second or third year teacher. College professional staff to assist in curriculum planning, evaluation, etc. as needed or requested.</td><td></td></tr>
</table>

COMMITTEE ON EXPERIMENTATION AND INNOVATION

August 8, 1967

College of Education
University of Tennessee
E. C. Merrill, Dean
D. R. Cruickshank, Chairman

The following five figures taken from proposal fifty-one illustrate the developmental process for the proposed model and are used here to show how closely proposed programs and the process of their development were integrated in a number of proposals.

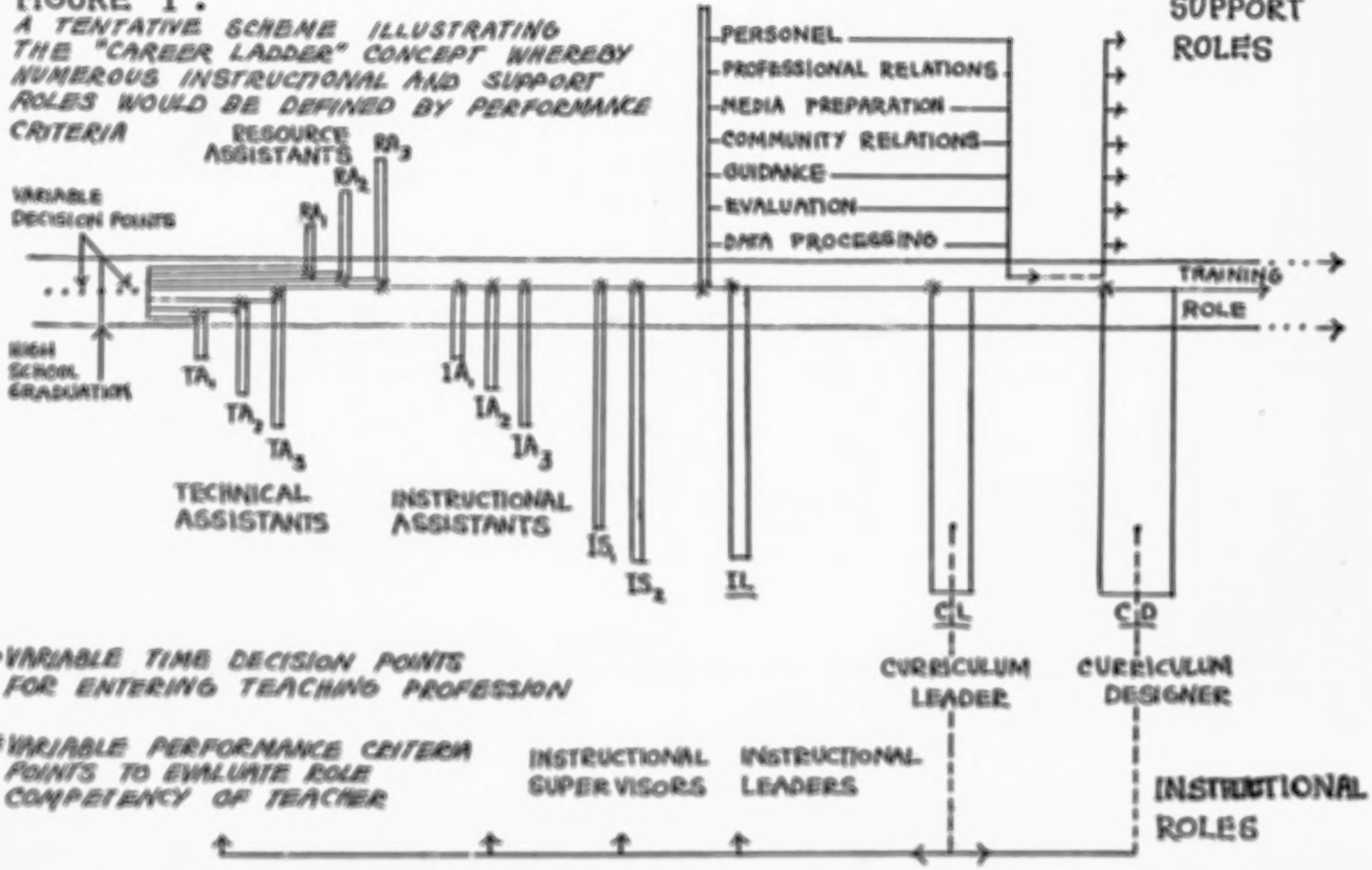


FIGURE 1: A TENTATIVE SCHEME ILLUSTRATING THE "CAREER LADDER" CONCEPT WHEREBY NUMEROUS INSTRUCTIONAL AND SUPPORT ROLES WOULD BE DEFINED BY PERFORMANCE CRITERIA

SUPPORT ROLES
PERSONEL
PROFESSIONAL RELATIONS
MEDIA PREPARATION
COMMUNITY RELATIONS
GUIDANCE
EVALUATION
DATA PROCESSING
VARIABLE DECISION POINTS
Y
X
HIGH SCHOOL GRADUATION
RESOURCE ASSISTANTS
RA1
RA2
RA3
TA1
TA2
TA3
TECHNICAL ASSISTANTS
IA1
IA2
IA3
INSTRUCTIONAL ASSISTANTS
IS1
IS2
IL
CL
CD
TRAINING
ROLE
CURRICULUM LEADER
CURRICULUM DESIGNER
INSTRUCTIONAL SUPERVISORS
INSTRUCTIONAL LEADERS
INSTRUCTIONAL ROLES

•VARIABLE TIME DECISION POINTS FOR ENTERING TEACHING PROFESSION

*VARIABLE PERFORMANCE CRITERIA POINTS TO EVALUATE ROLE COMPETENCY OF TEACHER

FIGURE 2:
A SCHEME ILLUSTRATING THE PRESENT RELATIONSHIP OF PRESERVICE AND INSERVICE TEACHER EDUCATION TO CAREER ROLES

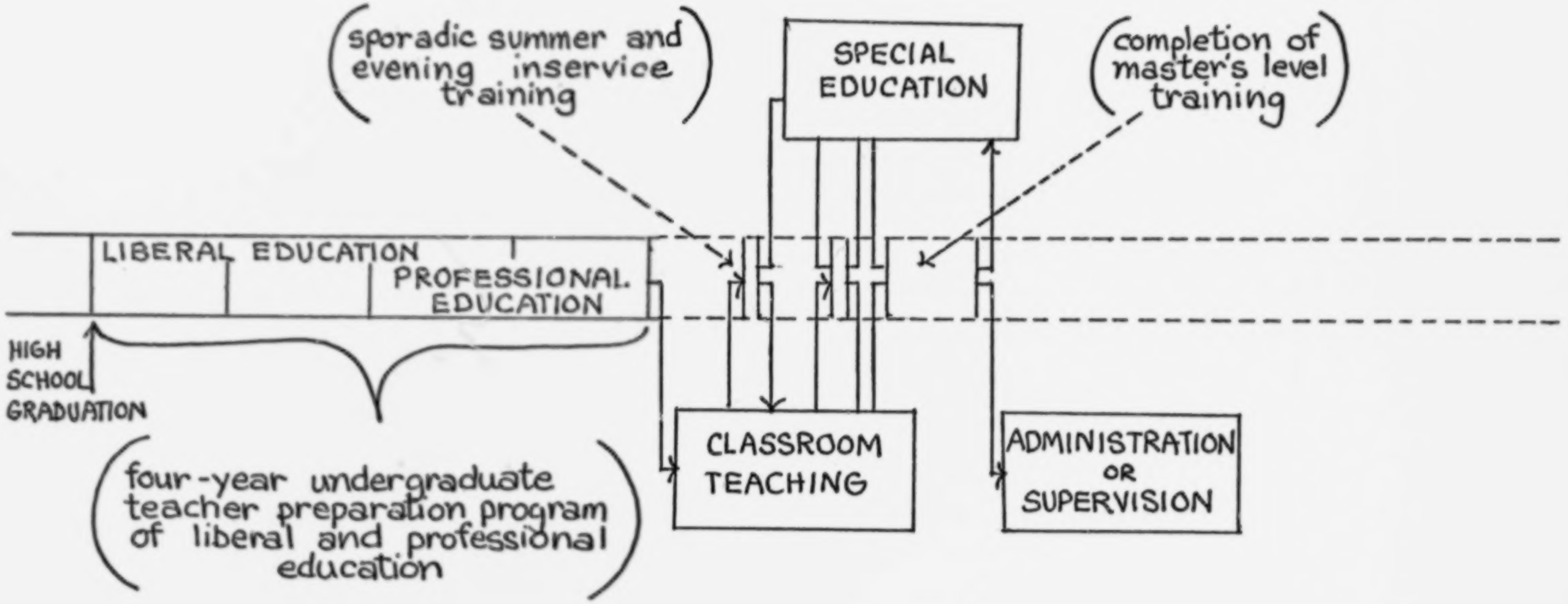

(sporadic summer and evening inservice training)
SPECIAL EDUCATION
(completion of master's level training)
LIBERAL EDUCATION
PROFESSIONAL EDUCATION
HIGH SCHOOL GRADUATION
(four-year undergraduate teacher preparation program of liberal and professional education)
CLASSROOM TEACHING
ADMINISTRATION OR SUPERVISION

FIGURE 4:
AN OVERVIEW OF PROJECT FUNCTION SEQUENCE

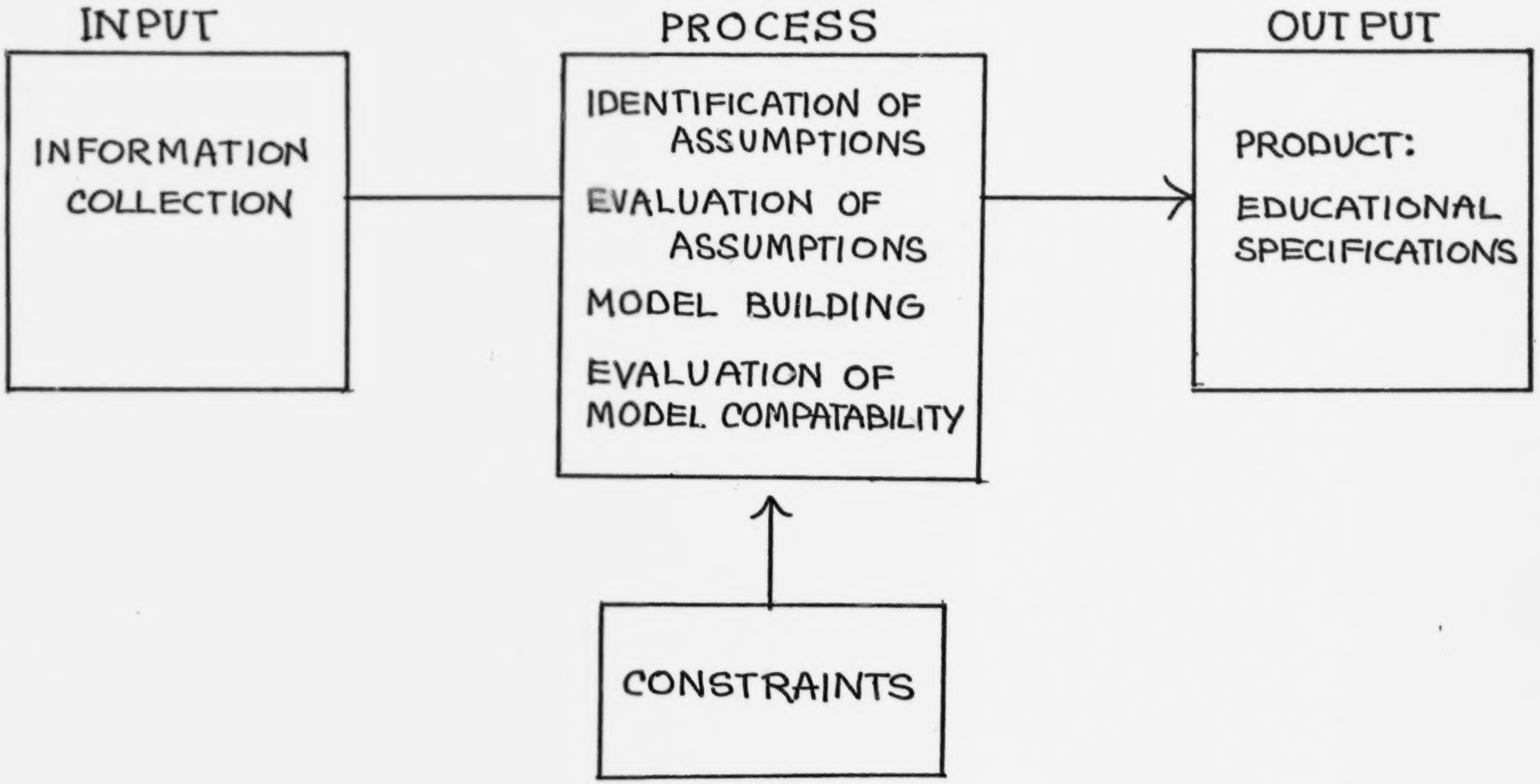

INPUT
INFORMATION COLLECTION
PROCESS
IDENTIFICATION OF ASSUMPTIONS
EVALUATION OF ASSUMPTIONS
MODEL BUILDING
EVALUATION OF MODEL COMPATABILITY
OUTPUT
PRODUCT:
EDUCATIONAL SPECIFICATIONS
CONSTRAINTS

FIGURE 5:
A FLOW CHART DESCRIBING THE PRODUCTION SEQUENCE OF THE PROPOSED PROJECT – INPUT PHASE

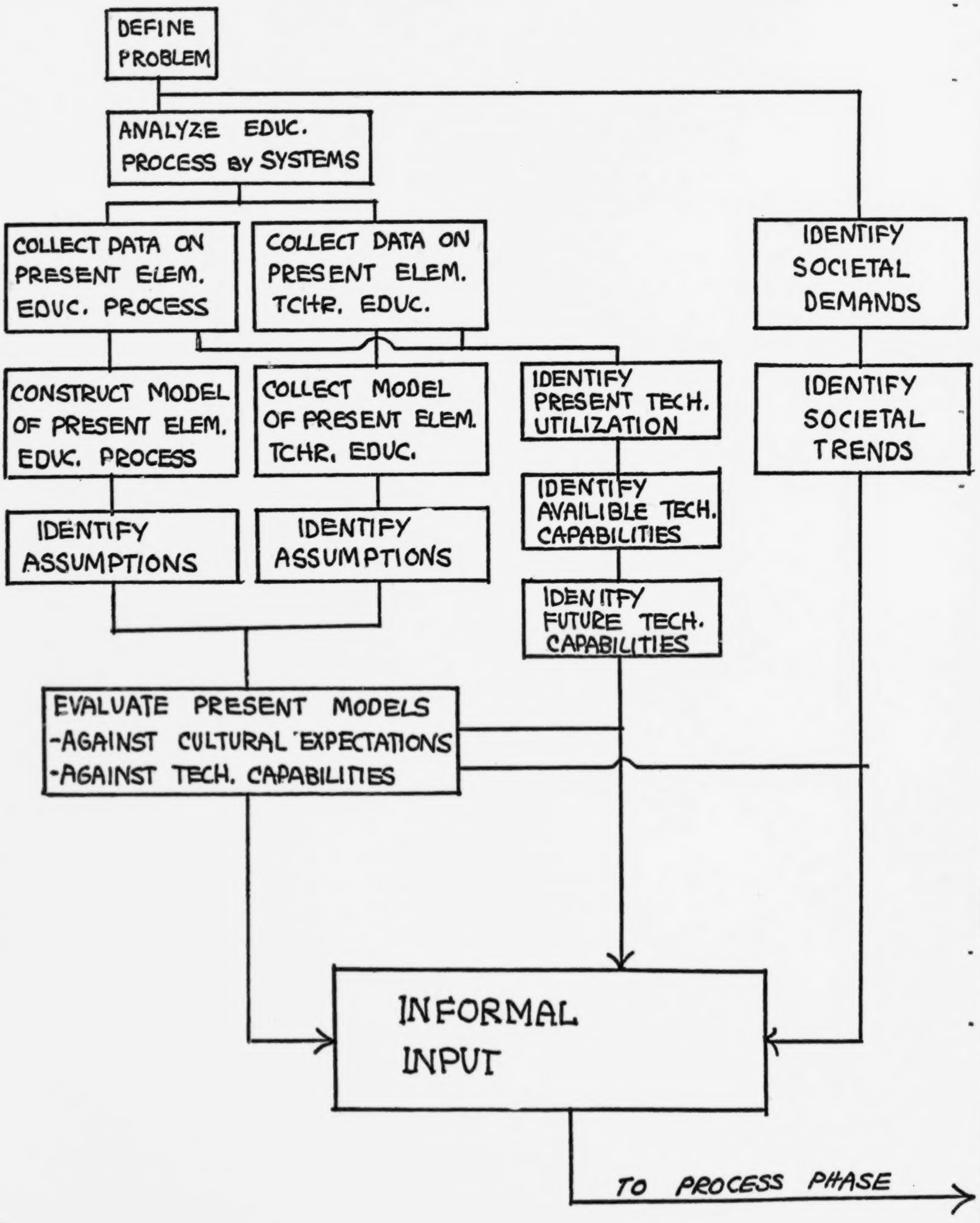
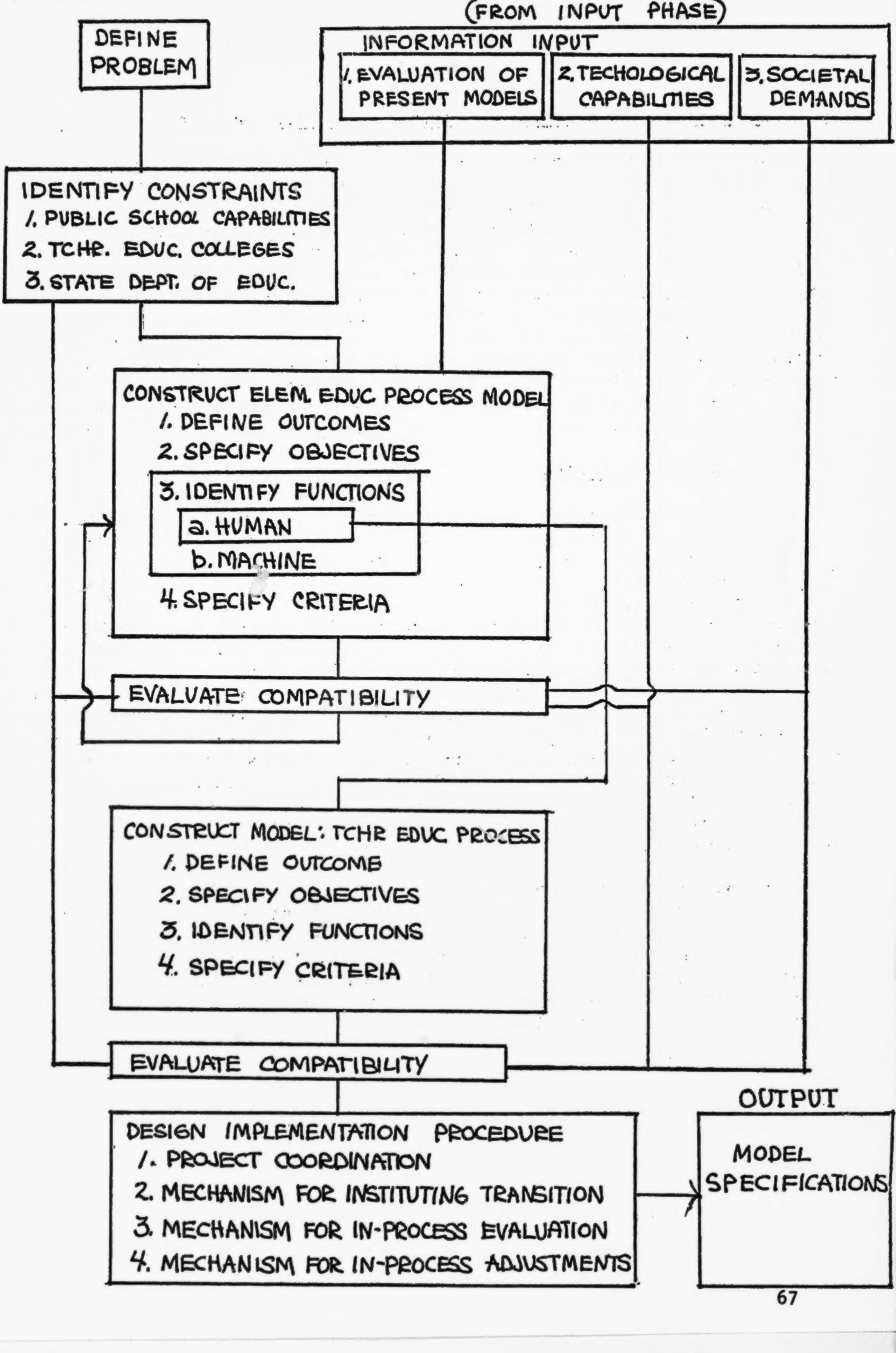

DEFINE PROBLEM
ANALYZE EDUC. PROCESS BY SYSTEMS
COLLECT DATA ON PRESENT ELEM. EDUC. PROCESS
COLLECT DATA ON PRESENT ELEM. TCHR. EDUC.
IDENTIFY SOCIETAL DEMANDS
CONSTRUCT MODEL OF PRESENT ELEM. EDUC. PROCESS
COLLECT MODEL OF PRESENT ELEM. TCHR. EDUC.
IDENTIFY PRESENT TECH. UTILIZATION
IDENTIFY SOCIETAL TRENDS
IDENTIFY AVAILIBLE TECH. CAPABILITIES
IDENTIFY ASSUMPTIONS
IDENTIFY ASSUMPTIONS
IDENITFY FUTURE TECH. CAPABILITIES
EVALUATE PRESENT MODELS
-AGAINST CULTURAL EXPECTATIONS
-AGAINST TECH. CAPABILITIES
INFORMAL INPUT
TO PROCESS PHASE

FIGURE 6:
A FLOW CHART DESCRIBING THE FUNCTION SEQUENCE OF THE PROPOSED PROJECT-PROCESS PHASE


(FROM INPUT PHASE)
DEFINE PROBLEM
INFORMATION INPUT
1. EVALUATION OF PRESENT MODELS
2. TECHOLOGICAL CAPABILITIES
3. SOCIETAL DEMANDS
IDENTIFY CONSTRAINTS
1. PUBLIC SCHOOL CAPABILITIES
2. TCHR. EDUC. COLLEGES
3. STATE DEPT. OF EDUC.
CONSTRUCT ELEM. EDUC. PROCESS MODEL
1. DEFINE OUTCOMES
2. SPECIFY OBJECTIVES
3. IDENTIFY FUNCTIONS
a. HUMAN
b. MACHINE
4. SPECIFY CRITERIA
EVALUATE COMPATIBILITY
CONSTRUCT MODEL: TCHR EDUC PROCESS
1. DEFINE OUTCOME
2. SPECIFY OBJECTIVES
3. IDENTIFY FUNCTIONS
4. SPECIFY CRITERIA
EVALUATE COMPATIBILITY
DESIGN IMPLEMENTATION PROCEDURE
1. PROJECT COORDINATION
2. MECHANISM FOR INSTITUTING TRANSITION
3. MECHANISM FOR IN-PROCESS EVALUATION
4. MECHANISM FOR IN-PROCESS ADJUSTMENTS
OUTPUT
MODEL SPECIFICATIONS

D. Relationships of Professional Sequence to Entire Undergraduate Program

The guidelines called for an expression of the relationship of the professional sequence to the entire undergraduate program. Although this program component was analyzed separately in the analysis of critical factors it is not presented here in detail. Rather the interrelationships between the professional sequence and the entire undergraduate program are implicit in the models chosen for illustration in the preceding section. Forty out of the seventy-eight proposals analyzed indicated some specific interrelationship between the professional sequence and general education on the one hand and various kinds of academic specialization reflected as majors and minors on the other. Not much detailed attention was given to these interrelationships in most of the program proposals. A unique feature of one proposal was to develop programmed learning text materials for all of the general education sequence for prospective elementary teachers.

E. Inservice for Graduates

Twenty-nine out of the seventy-eight proposals analyzed called for programs in excess of four years. Most of these specified a fifth year intership while several proposed continuation of supervised internships through a sixth year. Totally, forty-three out of the seventy-eight proposals dealt with an in-service component for graduates of one sort or another. Barring the two or three proposals which specified an MAT-type program for internship of one, two, or three years at the post-baccalaureate degree level, the majority of the proposals dealing with an in-service component did not specify much about this aspect of the program. Some called for in-service seminars held weekly, bi-weekly, or monthly for teachers teaching within the geographic area of the college or university's service, others called upon typical follow-up practices such as sending out questionnaires to the graduate's elementary principal or supervisor and the like. A few proposals specified the employment of practicing master teachers as clinical professors and supervisors both for student teaching and in-service intern components.

The overall trend in the proposals recommended the establishment of one or two years of internship with no prior student teaching. These proposals gave considerable importance to simulation experiences, micro-teaching and the like as pre-classroom experiences in lieu of or replacement for student teaching. The majority of proposals however gave the greatest amount of importance to the student teaching sequence as an intensive and productive laboratory experience.

F. Faculty-staff Utilization and In-service

Forty out of the seventy-eight proposals specified some kind of in-service for faculty and staff, developing to highly varying degrees several types of utilization patterns.

Proposal number forty-nine described its in-service training in the following manner:

"One of the more difficult problems that will be faced by a teachers' college during conversion to a new professional curriculum will be the preparation of its existing faculty for the change. One way to minimize the attendant problems is to convert from the existing program to the new program on a gradual rather than a sudden basis. A gradual approach may be expected to provide for smoother transition and much less disruption of the duties of staff members. Moreover, since development of the specifications to be set forth in the proposed model would require substantial time no matter how the change is handled, it seems logical to plan for retention of existing staff and enlistment of their assistance in the developmental staff and enlistment of their assistance in the developmental process.

"In-service training for staff members will thus be designed to provide an orientation to planned revision of the professional program, training in new techniques and media of instruction, and in their future responsibilities during the development and, eventually, during implementation of the revised program. It is not planned that faculty members will be given primary responsibility for the composition of new programs. Rather, emphasis will be placed on preparing them to participate, during program development, as subject matter experts in their respective fields and, during tryout and revision of new programs, as trained administrators or educational managers, and evaluators of programs in their specialty areas. Naturally, they will retain their responsibilities for teaching pre-professional courses in the manner selected as appropriate by the college. Chances are, their participation in the development of the new professional program will affect their teaching behavior in those pre-professional courses.

"The general strategy planned for conversion to a new curriculum, then, will be to develop a PERT-type system for gradually shifting from the existing to the new professional program. College faculty members will play active roles in the developmental process, but will not be responsible for the actual preparation of programs. In this fashion, personnel problems are expected to be minimized and existing staff members will be given the opportunity to grow with the program and become proficient in its eventual administration."

Proposal sixty-six made several suggestions about staff utilization.

"An orientation program will be provided for the professional core prior to program inception. Continuous developmental experiences will be provided for this core, and will include such activities as:

attending Creative Education Workshops;
visiting the Perception Laboratory at Ohio State University;
learning to use classroom behavior analysis scales;
taking a series of attitude and interest inventories
    (to match them with trainees for the professional core groups)
become a member of a T-Group (Sensitivity training);
learning the mechanisms of creative problem-solving
    (Synectics Theory);
attending small faculty seminars designed to maximize original
    thinking (brain storming sessions, group-think sessions).
visiting Crutchfield at Berkeley and learning of his work with auto-instructional materials for creative thinking;
listening to the Torrance tapes on "great moments of discovery";
viewing the McPherson film on creativity (Dow Chemical Company)
    "Ape to Agape";
working with Beck's films on constructive teaching;
visit Postlewaite at Purdue University (auto-tutorial instruction
    in Botany)"

G. Evaluation-Feedback - Follow-up

The guidelines called for evaluation and feedback techniques throughout as well as at the end of the program in order to determine to what extent trainees might then have acquired the essential teaching behaviors. Included in this program component was a call for follow-up studies of program graduates.

Forty-seven out of the seventy-eight proposals specified some kind of evaluation or feedback mechanism or techniques while twenty-nine of the seventy-nine of the seventy-eight specified some kind of follow-up study of graduates. In general this program component was not dealt with in great specificity among the majority of the proposals.

Proposal number sixty-six presented the following evaluation plan which illustrates the blending of data-gathering for evaluational purposes both during the pre-service and in-service components.

"An overall evaluation scheme will be developed that will encompass four broad dimensions. These are:

1. the individual teacher trainee - his personality characteristics, attitudes, values, goals, academic and professional progress;
2. the trainee and the professional core and all other resource personnel with whom he comes in contact - their interaction patterns and problems;
3. the trainee and his relationships with elementary students that he comes into contact with in his observation, participation, tutorial, and student teaching activities; also the trainee and his relationship and interaction patterns with his potential colleagues;
4. the training program itself.

"In general, there will be two phases to the continuous evaluation in order to revise this model program effectively. These two phases are pre-professional and professional. Pre-professional assessment will occur during the on-campus training phase. Professional assessment will occur while the teacher is in-service as a professional staff member of a school district.

"A wide array of evaluative devices will be utilized throughout the training program and the in-service development period. These devices will fall into several classifications such as those providing information concerning the trainee's attitudes, motivational patterns, ethnocentrism and rigidity, openness, creativity, sensitivity and empathy. The following are examples of such devices now available.

Minnesota Teacher Attitude Inventory
Levinson's Ethnocentrism Scale
The Dogmatism Scale
Myers Briggs Personality Type Indicator
The Gough-Sanford Rigidity Scale
Torrance's Personal Social Motivation Inventory
Roger's Helping Relationship Scale
The California F Scale

"It is expected that other measurement instruments would be developed as the model program became operational. For example, no adequate measurement device is now available that yields information relating to an individual's degree of empathy. Such a device could be developed as the program progressed."

Proposal sixteen specified that an evaluation team would hold the major responsibility for the entire preparation of the elementary teacher education model and would consequently infuse evaluation throughout the total proposal program.

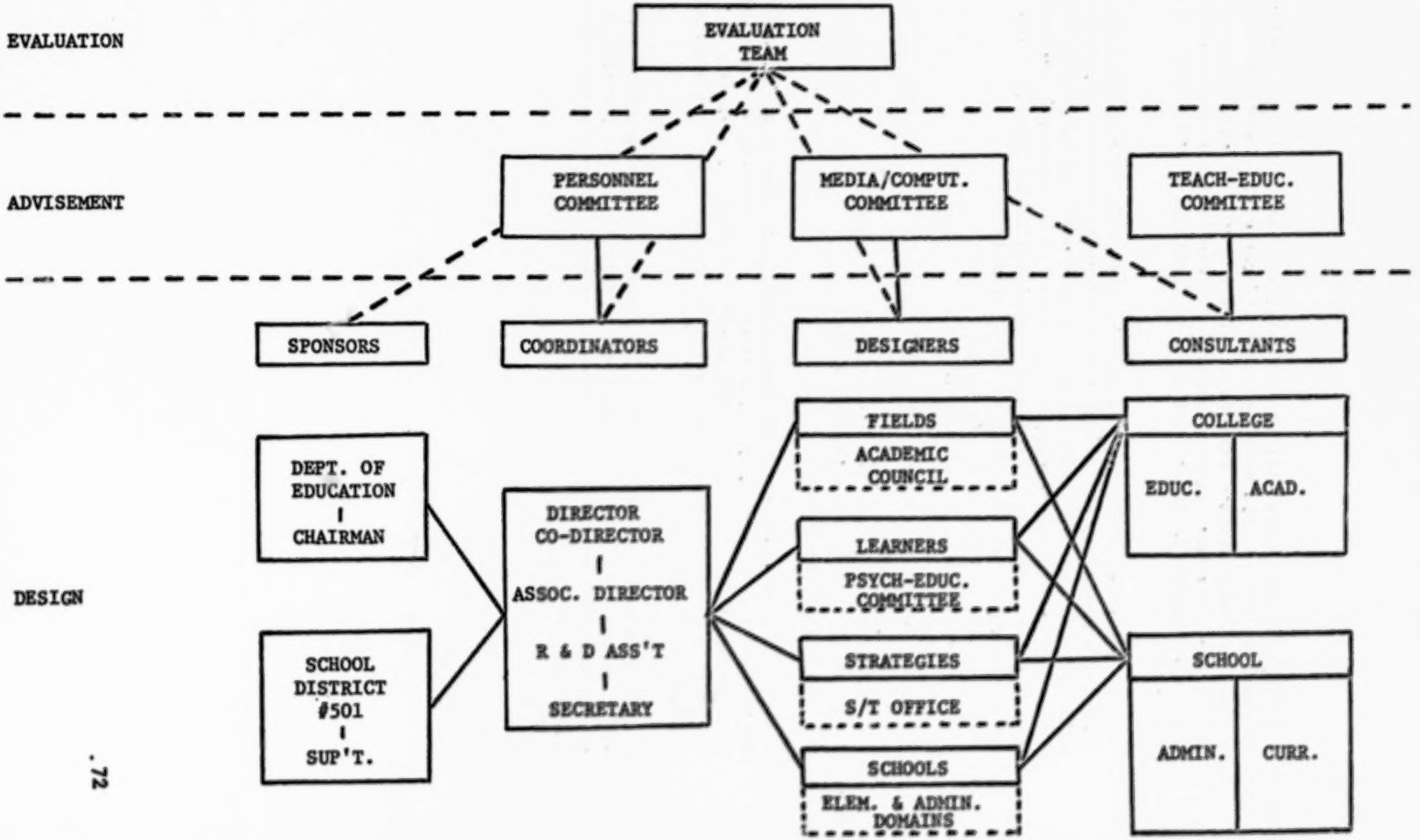

EVALUATION
EVALUATION TEAM
ADVISEMENT
PERSONNEL COMMITTEE
MEDIA/COMPUT. COMMITTEE
TEACH-EDUC. COMMITTEE
SPONSORS
COORDINATORS
DESIGNERS
CONSULTANTS
DESIGN
DEPT. OF EDUCATION
CHAIRMAN
SCHOOL DISTRICT #501
SUP'T.
DIRECTOR
CO-DIRECTOR
ASSOC. DIRECTOR
R & D ASS'T
SECRETARY
FIELDS
ACADEMIC COUNCIL
LEARNERS
PSYCH-EDUC. COMMITTEE
STRATEGIES
S/T OFFICE
SCHOOLS
ELEM. & ADMIN. DOMAINS
COLLEGE
EDUC.
ACAD.
SCHOOL
ADMIN.
CURR.

FIGURE 1: ORGANIZATION CHART FOR DESIGNING A MODEL ELEMENTARY TEACHER EDUCATION PROGRAM

H.& I. Management Data Systems

The guidelines called for presentation of information about multipurpose management evaluation systems proposed along with data storage and retrieval capabilities so as to permit continuous diagnosis of student progress and frequent restructuring of the trainee's learning experiences. In addition, the following program component called for a plan for continually and systematically assessing, advising, and updating the program. Actually, the vast majority of proposals dealt with these program components simultaneously. Forty out of seventy-eight proposals specified some kind of management evaluation system and thirty-two out of the seventy-eight proposals detailed some aspect of continuous assessment and revision. Illustrative of the varying approaches taken to these program components are the following excerpts.

Proposal number forty summarized its total systems approach to education in the following manner:

TABULAR WORK BREAKDOWN STRUCTURE - SYSTEMS APPROACH TO TEACHER EDUCATION

LEVEL 0	LEVEL I	LEVEL II	LEVEL III	LEVEL IV
Personnel & Resource Acquisition	Preparation of Specifications	Objectives	Global	Philosophical Evaluation Psychological Evaluation Content Evaluation
			Application	Philosophical Evaluation Psychological Evaluation Content Evaluation
			Teachable components	Philosophical Evaluation Psychological Evaluation Content Evaluation Computer Feasibility Evaluation
		Strategies	System	Philosophical Evaluation Psychological Evaluation Computer Feasibility Evaluation
			Modules A. Global in all but one module B. Detailed in one module	Philosophical Evaluation Psychological Evaluation Computer Feasibility Evaluation
			Branches In detailed module only	Philosophical Evaluation Psychological Evaluation Content Evaluation Computer Feasibility Evaluation
		Decision Models	Into: System Module Branch	Philosophical Evaluation Psychological Evaluation Computer Feasibility Evaluation
			Out of: System Module Branch	Philosophical Evaluation Psychological Evaluation Computer Feasibility Evaluation
	Dissemination	Final Report		

Proposal number forty-nine specified a developmental evaluation sequence.

"As the educational objectives are transplanted into instructional sequences, it is planned that several developmental tryout phases will be accomplished. The effectiveness of instructional sequences will be measured in terms of student achievement on the proficiency measures that will be provided as part of the model on learning efficiency. The empirical tryout and revision process based upon student performance will be prescribed as a fundamental feature of program development. Learning efficiency will be considered only after a sequence has been demonstrated to be effective, i.e., to produce reasonably uniform, high levels of proficiency.

"It is tentatively planned that at least two formal tryouts will be recommended, the second to include a substantial number of students, prior to final revisions. The pool of subjects for tryouts of preservice programs will be formed by undergraduate enrollees of the adopting institutions. As the programs grow larger and require increasing time for completion, a system of undergraduate credits will likely be necessary. As portions of the program become developed, they will be incorporated into the ongoing curriculum until, eventually, the entire professional curriculum is replaced.

"Operational evaluation - As the new program becomes a fully operational part of the new preservice curriculum, it is planned that a system of continuous evaluation of student progress be made available. Such a system would specify frequent proficiency testing, prehaps on a weekly basis, to provide data on the progress of individual students so that educational managers--faculty members responsible for a specified group of students--will be able to monitor their progress and keep them on a reasonably efficient track. The managers' decisions, based upon student performance data, would include assignment of students to remedial training, permitting capable students to skip sequences that are unnecessary, provision of tutorial instruction, planning of group discussions and seminars, and periodic comprehensive testing sessions. The goal of the operational evaluation system would be to provide for ongoing monitoring of individual progress that is as responsible as possible to individual differences in achievement.

"An evaluation system for future revision of the program - The ultimate test of the validity of the model training program will be measured by the performance of its graduates in elementary school classrooms. In order to support a long term experimental evaluation of program graduates, it will be necessary to follow up and monitor their performance on the job. To this end, a college office will be prescribed with a staff whose sole function is to collect, analyze and interpret data relating to the effectiveness of graduates.

"Instruments will be prescribed which will be designed to collect periodic data on the progress, problems, the attitudes of graduates including skills in which they would like further training. This information can serve both to point up weaknesses in the preservice curriculum and to help describe objectives for in-service training programs.

"In addition to self-reports from the graduates themselves, it will be useful to collect evaluative data from their supervisors and, perhaps from their students. In addition to personal evaluations, it would be useful to collect data on the academic progress of the students who are taught by graduates of the program. Past experience of researchers would seem to indicate that no one of these criteria of teacher effectiveness is very trustworthy, but, taken as group, they should provide information that has implications for updating and improving the teacher-training program.

"In order to compare the effectiveness of the program against other teacher education programs, it will be necessary to collect comparable information from and about colleagues of program graduates who were trained in other institutions. Generally, the process of design, collection, analysis, and interpretation of these data is seen as a long-term, full-time task which should be managed by a staff of educational researchers whose jobs include both experimental evaluations of the existing curriculum and formulation of recommendations for changes in the curriculum based upon those evaluations."

Additional Critical Factors

Despite the current well known importance attached to the fields of training for early childhood teacher education and the training of teachers of the disadvantaged only twenty of the seventy-eight proposals even mentioned the field of early childhood education while thirty-one of the seventy-eight specified some kind of program for teachers of the disadvantaged.

Only twenty-nine of the seventy-eight proposals dealt in any detail with subject matter specializations in the academic field for elementary teachers while sixty out of the seventy-eight proposals specified the wide utilization of audio-visual and multi-sensory materials and techniques. Some proposals talked about the development of mobile video tape units and other mobile trailers which could transport a wide variety of audio-visual aids to student teachers and interns on the job. Almost every proposal that detailed audio-visual technology specified the use of video tape recorders; many specified simulation laboratories while relatively few discussed the need for programed learning materials.

As far as the use of personnel from the general field of industrial technology as applied to education goes, most proposals did not specify any interrelationship between the higher education institution and such additional organizations. Of course three of the four proposals emanating from profit-making or non-profit-making corporations had this stress. Science Research Associates, Motorola, Programmed Learning Corporation, Educational Test Service, Menningers Clinic, and others were cited as collaborative resources. Taken totally, seventeen out of seventy-eight proposals specified some kind of interrelationships with organizations like the American Institutes for Research, Systems Development Corporation, Regional Educational Research Laboratories, Psycho-educational Clinics, and the like.

One proposal specified the wide utilization of the university's School Study Council, seventeen proposals apparently had public school personnel participating in the preparation of the proposal, forty of the proposals mentioned public school utilization while seven said nothing at all about the public schools or related agencies. A few additional proposals talked about establishing centers in the schools, running summer pilot schools, establishing off campus student teaching centers, and the like.

As far as linkages with state departments were concerned, barring the two proposals emanating from state departments of education, only seventeen out of seventy-eight proposals mentioned close working with regional laboratories, two involved state educational associations and two involved community social agencies specifically.

Evidently not very many non-professional elementary education personnel were involved in the preparation of the proposals. As well as one can judge only twenty-seven out of the seventy-eight proposals even mentioned personnel specifically from academic disciplines and areas of study other than elementary education.

The following two illustrations show how some of these additional factors and programatic purposes were presented in some of the proposals.

'What follows, then, is a sketch of a model for the preparation of teachers or educators, more broadly--for service in the culturally diverse inner-city with a concentration upon children of ages three to twelve. (If the institution submitting this proposal should be ultimately funded for the reorganization of its own program along such lines as these, it will also reform its secondary curriculum, accordingly, so as to make one comprehensive Teacher Education Program.)

'What is here provided for is a two-year graduate program, culminating in a master's degree. At the end of three quarters or two semesters of study, the successful candidates will be awarded a credential. The second year of preparation consists in an internship, with the new teachers earning a regular, full-time salary, but working under supervision and with an on-going seminar. This program presupposes an unusually active recruiting effort, so as to secure students who: (1) have a baccalaureate degree, preferably with a major in an academic subject; (2) express a strong interest in teaching in the inner-city; (3) give evidence both with respect to their academic abilities and their personality and character of being able to take their place as teachers and educational planners, innovators and evaluators, professionals able to work alone or as members of a team. It will be important for the recruiting effort, furthermore, to enroll more than a token number of Negroes and members of other ethnic minorities, and to attract as many men--masculine men--as possible, in order to afford elementary children of non-affluent neighborhoods what they so often lack: a strong, male model.

"There follows a list of desiderata expressed in terms of behavioral propensities, dispositions, and capacities, matched with the kinds of educative experience to be provided:

DESIRED OUTCOMES IN NEW TEACHERS	EDUCATIONAL MEANS
1. Willingness and ability to help in planning new schools--not just accommodate to the existing.	1. From beginning, trainee works with broad-based group in analyzing educational needs of inner-city, ongoing experimental programs, and helping devise new plans.

"The typical teacher education candidate is inordinately concerned with his own adjustment to the school to which he will ultimately be assigned. Right from the point of recruiting, these students, however, will be encouraged to think of themselves as agents of change, partners in a joint process of devising better schools and better educative communities.

2. Recognition of education not being a monopoly of the schools but at best a joint enterprise of teachers, parents, employers, professionals from several social agencies.	2. Trainee interviews parents in homes, employers and various social professionals. For one term works part time as apprentice in employment service, welfare office, mental health clinic, or like.

"The typical teacher has little conception of the problems and procedures of his own professional allies in a given community, and is likely to encounter parents little if at all: yet somehow home, school, and other centers of community influence must supplement each other if education is to be improved. This can come about only if the teacher gets acquainted with persons in these different roles, and has experience relating to them in devising new attacks on problems.

3. Acquaintance with value structures, home and neighborhood conditions of proverty and borderline areas of city.	3. Theoretical study of culture of poverty and societal tensions from anthropologists and sociologists. Time spent in schools, on playgrounds. In depth acquaintance which one family.

"The future teacher must be helped to break out of his own ethnocentrism in a realization of the facts and reasons for cultural diversity. Probably he should become acquainted with at least one exotic instance, as well as between it and suburban and rural areas.

4. Inclination and ability to help pupils in self-understanding, the projection of ideals, and the development of plans for preparation.	4. Participation in sensitivity training, philosophical examination of own values; practice with small groups of pupils in discussions of themselves.

"By himself experiencing what it is to subject his own values of self-scrutiny and the scrutiny of his fellows, the teacher may be helped to promote this process in his own pupils. Acquaintance with certain writers in the existential tradition can be of help here, but also with authors taking a more rational approach to the criticism of values.

5. Tendency to develop independence in pupils and their growing skill in choosing and applying methods appropriate to various kinds of problems.	5. Engaging in inquiry into inquiry training. Theoretical consideration of creativity and its promotion. Use of inquiry/creative techniques in whole classrooms.

"Continuing the theme of consonance between the trainee's learning and his teaching, we here propose creative inquiry into the nature of creativity and the differences between teaching-by-transmission theories and those that emphasize activity, problem-solving, and individual investigation.

6. Tendency and knowledge about how to promote free group discussion, pooling of abilities, cooperativeness in attack upon mutual problems.	6. Participation in a weekly book based discussion and in planning and execution of a joint (4-6 person) paper. Reflecting on performance in light of group processes theory.

"Some but not all discussion should be subjective and introspective in nature. Some but not all learning should be individualized and independent. Also important is group discussion of a common problem or of a text or other object. Participation in and leading of such discussion, with emphasis upon group-wide involvement, and frequent reference to the focal point, are arts which, though difficult, can be learned. Rarely are they taught, however, in teacher education programs.

7. Skill in devising, initiating, and evaluating educational experiments; working in a team of researchers.	7. Instruction in rudiments of research design and in major evaluative instruments and techniques. Submission of a carefully drawn proposal for research, and participation in group evaluation of other proposals.

"These teachers are being prepared to fill a huge gap presently existing in the world of educational experimentation and research: The cooperating teacher at least somewhat sophisticated in the matter of research design. These teachers should be equipped to read the literature of their field, to know what other talents than their own need to be involved in a research team, and to be able to take their place on such a team. To some extent this set of skills should be developed in close connection with the specialized subject matter preparation discussed in (9).

8. Ability to relate curriculum to a structure of values; skills and bodies of knowledge to differentiation of ways of knowing.	8. Study and evaluation of selected schemes of values and knowledge. Application of theory to existing and projected elementary curricula.

"Curriculum reform is frequently a matter of tinkering with present practice, with little reference to any rational justification for what is included, what is excluded, and how the parts are related. Here as elsewhere, better theory is needed in the preparation of the teacher, along with opportunity to use this theory in his own exercises of imagination for improving the schools.

9. More than ordinary (elementary teacher acquaintance with one subject field--reading, mathematics, natural science, social studies, music, art, physical education--including both developed skill in teaching and familiarity with recent research.	9. Intensive and continued instruction in chosen field, with emphasis upon recent and ongoing research. Supervised classroom practice in teaching specialization, with evaluation in terms of student's own behavioral goals.

"The day of the elementary self-contained classroom is hopefully nearly over. Increasingly it is evident that the encyclopaedic knowledge required of such a teacher is almost never found or produced. Consequently, pupils are taught new math by teachers very insecure about their own grasp of the basic concepts, reading by teachers not equipped to read recent developments in linguistics, music by teachers unable to sight-read, etc. Although no teacher should be thought of as prepared to teach only his own specialty, he must be helped toward a considerable mastery of one subject, so that again he may take his place in a team of cooperating teachers, and add his expertness to such a team. Not the least justification of this expertness lies in the plain fact that the child helped toward skill in reading or arithmetic or drawing is helped thereby to overcoming his own sense of helplessness and to developing a more positive conception of his abilities.

10. Ability to draw upon a reportory of teaching strategies, including those which utilize audio and video tapes, educational television, tutoring machines, films, overhead projectors, etc.	10. Practice in the employment of instructional aids both in their own learning, as in the case of micro-teaching tapes and film-loops, and in their elementary school experience.

"For all of the fanfare about the technological revolution in teaching. much hardware remains in school closets, largely because of inadequate programs (software) and teachers' unfamiliarity with its working. The new teacher must be on terms of easy familiarity with a large battery of aids, but also be helped toward a discriminating use of technology, so that he will take advantage of the labor-saving features of gadgetry for additional opportunity for the most personal of instruction.

11. Familiarity with ways of assessing a pupil's stage of development in order to individualize his instruction, by appropriate temporary grouping, tutoring, and indicating appropriate next steps in reading and the use of technical aids.	11. Exposure to various devices for determining reading readiness, arithmetic sophistication, etc. and practice in administering and interpreting tests.

"The teacher must be helped to see that the profiles of no two children are identical once it is recognized how many distinguishable skills are condensed in such a phrase as grade in reading. He must further be helped to discover ways of individualizing the prescription of next steps in learning, seeing grouping as both practically necessary and also valuable for the peer help it may provide, but also seeing when the child can be guided to a highly particularized pursuit of new skills and knowledge."

Proposal forty stressed a multi-media approach to each of the teacher behaviors to be developed. Its overall scheme follows.

MULTI-MEDIA APPROACH BASED UPON THE NATURE OF THE BEHAVIOR BEING DEVELOPED

OBJECTIVE	TWO MEDIA WHICH MIGHT PROVE EFFECTIVE IN DEVELOPING THE BEHAVIOR
The student teacher will recall the appropriate group dynamics term when confronted with the definition.	Programmed instruction text. Computer assisted instruction sequence.
The student teacher will identify threatening behaviors exhibited by another with a group discussion.	Using a response booklet and a taped group discussion on dial access. Using a recorder sheet in an actual group discussion.
The student teacher will refrain from the use of threatening behavior in a group discussion.	Self evaluation checklist used periodically. Recorder evaluation and report sheet circulated around the group.
The student teacher will identify and defend alternate courses of action for a particularly chaotic moment in a classroom.	Using T. V. tapes of simulated incidents. Using T. V. tapes of his own performances before a class.

MULTI-MEDIA APPROACH BASED UPON THE TASK OF SELECTING MEDIA APPROPRIATE TO THE CHARACTERISTICS OF THE STUDENT TEACHER FOR THE SAME OBJECTIVE

The student teacher will explain how he can use himself as an instrument in reducing interpersonal tensions in a group of his peers.

He will use a programmed text, with dial access audio of discussion in which he participated	He will discover his potential in group situation where teacher guided discussion is alternated with peer discussion.	He will alternate peer group discussions with the viewing of TV tapes of the discussions in group sessions with instructor.	He will alternate peer group discussion with the viewing of TV tapes of the discussion in private sessions with the instructor.
ABSTRACT FIELD INDEPENDENT	CONCRETE FIELD DEPENDENT	HIGH LEVEL OF ASPIRATION FIELD INDEPENDENT	LOW LEVEL OF ASPIRATION FIELD DEPENDENT

In summary, the preceding material in this chapter illustrates some of the similarities and uniquenesses of the unfunded proposals in terms of the various program components. The following chapter presents in more detail eight illustrative models from among those unfunded.

IV

SELECTED PLANNING MODELS

Because each has unique features of one sort or another and because, in another sense, they are illustrative of the better proposals submitted, the author and his consultants arbitrarily chose the plans proposed by numbers 62, 47, 50, 21, 46, 58, 56 and 68. A number of other illustrative models could as easily have been chosen but their component parts were already reflected in one of the ones selected for inclusion herein.

The author acknowledges his indebtedness for all of the work done by initiators of these proposals and apologizes for the editing which was found necessary to condense the material into usable space.

That part of each proposal which dealt with putting the plan into operation for the possible funding phase has been deleted and the essence of the proposal wherein the appropriate program components are explained has been retained.

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Introduction

Concern with attempts to improve teacher education is frequently focused upon the lack of a theoretical or heuristic model of instruction. Such models establishing frameworks for the instructional process to be presented to preservice teachers as well as frameworks for the presentation itself are currently unavailable. It is often stated that the lack of such models prevents the development of adequate procedural considerations. A clarification of this problem is presented in the "Introduction" of the 1963 Report to the NCTEPS Conference (NEA 1964) as well as the standard analysis presented by McKeachie (1963) in *Handbook of Research on Teaching*. Shoben (1967) makes a rather caustic comment upon the situation in a statement appearing in the recent book *Improving College Teaching*. He states that, the lack of any significant conceptual framework within which to set the problem of teaching makes teaching hard to evaluate, difficult to improve, and a little dull to discuss." (Pg.295) Harold Howe (1966) more pointedly describes educators as, fragmented, myopic nonstrategists." (Pg.4)

Unfortunately, the empirical data required for formulation of theoretical models is of such a fragmented nature that it is impossible to relate them in any unified approach to "teacher education." Although a variety of approaches to the education of teachers have been proposed, few attempts have been made to encompass means for drawing together the objectives, experiences and outcomes of the total training approach. Such a unified longitudinal and experimental approach is only recently becoming thought of as a prerequisite to development of adequate models. Both Halliwell (1964) and Harap (1967) have voiced concerns over the need for such unified approaches after reviewing literature dealing with teacher education training programs. Foshay (1965) is somewhat more directly critical when he states that it is obvious there is no discipline of education because there is no agreement concerning the phenomena to be investigated, rules governing hypotheses generation or criteria for rhetoric.

Recent developments in "computer assisted instruction" (CAI) and "Systems approaches" have provided educators with the most significant potential key for development of unified approaches to controlled investigations educational sequences. The ability to gather related empirical data appears to lie as much in the underlying concerns that have prompted the recent development of both "CAI: and "systems" as it does in the products of these concerns. Fundamental principles taken into account by these technological developments appear to have as much significances for education as do the developments themselves.

Braunfeld (1964) points out, in a discussion of Plato III, that specifying criteria of satisfactory student performance is an essential step in promoting efficient progress. Suppes (1966) has indicated that CAI principles promote increased opportunities for individualizing instruction.

The advantages of a "systems" approach are illustrated in descriptions by Silberman (1966) in which a 'cut-and-fit' procedure to achieve the desired goals is used in the absence of detailed models. The basic characteristics of a 'system' relevant to educational considerations are presented by Barson (1965) who provides the following definition.

> "An instructional system is a complex consisting of the following components; Learner(s) and a combination of instructor(s), material(s), machine(s), and technician(s), given certain inputs and designed to carry out a prescribed set of operations. This set of operations is devised and ordered according to the most recent and pertinent evidence from research and expert opinion such that the probability of of attaining the output, specified behavioral changes in the components, is maximal." (Pg.378-79)

Ryans (1965) further points out that this organized assemblage of elements united by a common information network is capable of acting upon information from both internal and external sources to provide self-adjusting or self-correcting capacities.

Review of Literature

This brief review is intended as an indication of the general considerations taken into account in establishing procedures for the proposed system. A presentation of basic assumptions followed by supporting statements from a variety of recognized authorities is used to organize the review.

Instructional goals, regardless of the procedures of which they are achieved, are most efficiently formulated in behavioral terms. Clearly delineated behavior provides a basis for evaluation which is both readily apparent and easily distinguished. Lumsdaine (1967) points out that progress in research can be achieved only as "dependent measures of the outcomes of teaching in terms of observed changes in student's behavior" (Pg. 240-241) are developed. Mager (1961), in a more definitive discourse, demonstrates how competencies in stating behavioral goals where achievement or terminal behavior is overtly demonstrated, may be developed. Particularly pertinent to the current proposal is the work by Mechner (1967) who states that behavioral analysis provides for identification of specific skill and knowledge components and how they must be sequenced to promote effective learning.

Numerous attempts to upgrade measurement and evaluation procedures are concerned with a similar focus on behavior as a means of evaluating goals. Gagne' (1965) stresses the importance of establishing behavioral goals in the hierarchical 'mini system' developed as the foundation of "AAAS --- Science a Process Approach." At least one of the EDLABS, Eastern Regional Institute for Education(ERIE), is attempting to adapt this curricular process to other academic areas.

Much of the work in programed learning has pointed to the fact that terminal behaviors must be specified prior to sequencing of experiences designed to provide for adequate attainment of skills, knowledges and abilities. CAI (a sophisticated programed procedure) work has demonstrated the need for clearly analysing overt behavior at various checkpoints in order to develop new paths for the learner. Braunfeld (1964) points out that a 'machine' must know precisely what to expect from a learner in order to present the learner with a meaningful sequential block of experiences.

Provisions in highly sophisticated CAI approaches have also produced evidence that internal evaluations of relationships between strategies and behaviors developed can be made. Constant evaluations of the relationship between machine strategies and student performances are inherent in the machine presentation. Glaser (1966) supports the value of these capabilities by specifically stating that interactions of student characteristics and strategies of teaching are significant in terms of achieving specific student behaviors. Stolurow (1964) again emphasizes that programed learning is a way of adapting to the individual ways by which people learn. Suppes (1966) presents a point of view representative of an additional recognized dimension of CAI capacities.

> "One of the most exciting aspects of computer-based education is the opportunity it offers for tailoring instruction to the individual child's needs. An individualized approach is possible at various levels of interaction between student and computer program, though the third and deepest level is still mostly beyond us from a technical standpoint. Each of these levels is called a system."

It is these concerns that are most significant in the present proposal rather than implementation of CAI itself. CAI will, however, become a part of the current approach as it develops.

The adherence to a 'system' for developing a unified approach has been demonstrated in a variety of situations. Although somewhat unscientific, work at Wheelock College (Leitman, 1966) has shown increased student involvement in a unified approach to teacher training that replaced three separate education courses. Most relevant to this proposal are those systems involving the use of internal, experimental 'strategies' which may be evaluated in terms of contribution toward developing the behavior model specified as the terminal product of the system. Neale (1966) presents a general overview of these characteristics in a recent journal and describes how approaches to incorporating a 'system approach' may be undertaken. Glaser (1965) points out that although such a description of educational design sounds technological, the success of such an approach requires all the artistry and sensitivity that can be mustered by the practitioner.

The work on 'data banks' is superficially related to this proposed approach and provides a framework for the development of performance and learner data sources. Learner characteristics information will be significant in identifying interactions of variables as they affect sub-behavioral development and specific strategies utilized to promote behaviors. Astin (1966) outlines the fundamental structure of a data bank as Input (raw materials) -- Operation (affect on development) -- Output (operational manifestation of educational objectives). Although somewhat more concerned with data banks on a national scale several authors in the *Journal of Educational*

Measurement (1965) present implications supportive of data collections in the current proposed context.

Input data relating Learner characteristics to specific instructional strategies will provide a valuable base for identifying the relationship of specific learner variables to methodology and behavioral outcome variables.

Two additional assumptions basic to the currently proposed system are:

Individualized instructional procedures are generally most effective for achieving specified behavioral goals and
Students with different characteristics learn most effectively via different methodologies.

Summary

It appears that individualization of instruction and behaviorally stated goals placed in a unified 'system' will provide a unique and effective framework for producing specified terminal products and for collecting related empirical data. The 'system' will provide a basis for evaluating interactions of teaching strategies and behavioral outcomes and will promote analysis of instructional components as they relate to the total 'model' being developed.

A procedure incorporating these features will be described in the procedures section of this proposal.

Procedure

Three major components to this proposed system include; (1) Learner characteristics, (2) teaching strategies or modular units and (3) behavioral outcomes. The interaction of these variables for the purpose of identifying the most efficient combination of factors to achieve desired goals is the major emphasis of this proposal.

Behavioral objectives associated with characteristics possessed by a 'teacher' will be developed in accord with the 'teacher model' and teaching behaviors presented in Appendix I. Learner characteristics to be measured and accounted for in the 'system' will follow as the second step in building the system and finally, the instructional strategies designed to accomodate identifiable learner characteristics will be structured to achieve the behaviors specified above. This procedure is consistent with 'instructional systems' development currently being advocated by Stewart (no date) and Hamreus (1967).

Student characteristics logically assumed through empirical and theoretical sources to have potential interaction effects with modular strategies will be identified and measured. However, additional student characteristics will be measured whenever possible to facilitate development of the data bank which will potentially contribute to identification of relationships not immediately apparent as well as possible student-professional role interactions available during follow-up phases of the investigation.

Three representative, independent teaching strategies or modular units are presented in Appendix II. These strategies represent the type of organization envisioned for at least three independent modules within the system. Examples of the behavioral objectives likely to be promoted by each of the strategies as well as variations within the basic strategy to account for relevant individual differences are presented. Additional modules composed of a teaching strategy, behavioral objectives and dimensions to accomodate individual differences will be developed during preparation of the system.

Additional modules, which meet the requirement of individualized training criteria, already available for incorporation in the system include; (1) the practicum, a student teaching experience, (2) simulation of problems faced by beginning teachers, (3) simulation of classroom control situations, (4) simulation of discovery approaches to teaching and (5) a programed sequence on descriptive statistics. Each of the modular units may be adapted for use in accomodating learner characteristics in a fashion similar to that presented in the three examples form Appendix II.

The practicum at the undergraduate level is currently a lock step requirement of eighteen weeks 'student teaching' in supervised classroom settings throughout the geographic region served by the college. A graduate (liberal arts graduates currently taking a fifth year for certification) program is being carried out and involves a full year program with interning and seminars conducted jointly by local school officials and college personnel. This program will be expanded from the school system currently involved to two additional systems in the next year. The highly individualized nature of this component makes it ideal for potential incorporation within the present and proposed system.

Analysis and Simulation of Problems of Beginning Teachers was a USOE sponsored project originally conducted on the Brockport campus. Completion of the project has resulted in publication of the two week simulation package by Science Research Associates (SRA) and is currently in use by one of the developers of the program. Again, although the basic instructional unit requires completing some participation in group activities, there are features of the package that lend themselves to the current 'system'. The production of the basic instructional package was carried out under the direction of Brockport's Instructional Resource Division. Alterations in the instructional package may be efficiently completed by this staff.

Two additional simulation packages, both completely individualized, are being field tested during the spring semester. The Kersh materials being provided by the Oregon Teaching Research Division include the Classroom Management and Discovery teaching units. The implications for the currently proposed system are obvious.

The project director is currently designing an individualized educational laboratory for presentation of basic statistical concepts to both graduates and undergraduates. Incorporation of the modular unit will occur to the extent that behaviors developed as part of this facility are consistent with those required by the 'teacher model'.

Additional modules required to complete the 'system' as presented in Appendix III, will be drawn from the multitude of fragmented methodology studies currently being carried out. Developers of such strategies will be invited to submit modifications consistent with the proposed scheme. Behavioral criteria will be developed for each of the modules by the developer of the instructional unit and the system staff.

Although the 'Teaching Model' to this point is pointedly behavioristic, there are numerous cognitive 'course oriented' knowledges, skills and abilities that are required for adequate implementation of behaviors in operational settings. These knowledges are initially assumed to be those consistent with a three year liberal arts program and will continue into the inservice program consistent with a teacher's chosen field of academic involvement and N.Y.S. certification requirements. These partially 'substantive' and 'foundation' requirements will be met in the more traditional 'course' setting.

Students will progress through each of the modules at their own rate insofar as possible. Students will be allowed to progress to new modules as soon as they meet criteria indicating satisfactory completion of the preceding modules. Although group activities will be introduced whenever feasible, self-pacing will undoubtedly restrict the usefulness of this method.

Criterion measures for each of the modules will be adapted from standardized instruments when possible. However, it will be impossible to locate valid and reliable instruments for each of the modules anticipated for use in this system. Face validity and limited reliability estimates will have to be used in the absence of standardized instruments capable of measuring the desired outcomes. For the most part however, as indicated above, attainment of observable behaviors will ease the strain normally introduced by indirect measures.

Students processed through the system will be evaluated as classroom teachers during their first and second year of teaching. Sub-behaviors developed as part of the model will be specifically evaluated to determine if these behaviors are desirable characteristics of 'good' teaching and therefore desirable attributes of the terminal model.

Alterations of the system may then be introduced in attempt to explore the potential possibility of introducing new 'terminal models' and resultant module adjustments. The entire system thus becomes a self-correcting model and is amenable to continual updating to accommodate new instructional modules.

Completed Product

The educational specifications resulting from the proposed activity will include:

1. A set of behaviorally stated objectives required of individuals who will be come provisionally certified to teach in New York State schools.
2. A set of detailed descriptions of instructional modules designed to produce the objectives in (1).
3. A list of student characteristics and set of quantitative measuring devices to assess required learner input information.
4. A list and content outline of substantive courses to accompany the system for development of cognitive skills consistent with New York State provisional and permanent certification requirements.
5. A detailed description of management requirements including:
    a. Equipment and materials
    b. Space needs
    c. Staff needs
    d. Student feedback provisions
    e. Participating school systems (intern)
    f. Data processing needs
    g. Systems analysis and correction factors.
6. A set of administrative requirements.

Objectives Inherent In The 'Teaching Model'

A. The Teacher (as the teacher with the learner) develops objectives which are appropriate to:
    1. the developmental level of the learner
    2. the abilities of the learner
    3. the cognitive styles of the learner
    4. the drives of the learner
    5. the past experiences of the learner
    6. the needs of the learner
    7. the needs of society
    and which focus on observable behaviors

B. The Teacher uses a variety of media appropriately, sampling liberally from the following continuums:

Individual--------------------------------Group
Structured -----------------------------Unstructured
Concrete---------------------------------Abstract
Teacher made-----------------------------Commercial

C. The Teacher sequences learning experiences (both short and long range) to insure maximum efficiency in reaching objectives without undue infringement upon:
    1. the developmental level of the learner
    2. the abilities of the learner
    3. the cognitive styles of the learner
    4. the drives of the learner
    5. the past experiences of the learner
    6. the needs of society

D. The Teacher will frequently evaluate the learner's progress in reaching goals, sampling liberally from the following evaluation foci continum:

Teacher structured ---------- Pupil structured
Learner self-eval. ---------- Peer evaluation
In simulated situations ------- In real-life situations
Knowledge oriented --------- Function oriented
Standardized instruments ------ Non-standardized instruments
Objective oriented criteria --- Subjective oriented criteria

Identifying the specific barriers to learning encountered by individual learners and restructuring learning experiences to overcome barriers (see B above).

E. The Teacher (or the Teacher together with the learner) will pursue the objectives until they are achieved or modify or abandon..

F. The Teacher will maintain effective relationships with parents, administrations and general public.

Rationale For Objectives

Module Series A

Objective: (Summarized) The teacher develops objectives which are; (1) appropriate to the uniqueness of individual learners, (2) based on the needs of society, and which (3) focus on observable behaviors.

Rationale: Careful writing of objectives is essential as a guide for the selection of learning experiences. Teachers provide experiences which make a difference (modify behavior). Each learner, whose behavior is to be modified, is unique from every other learner in a variety of ways. He is at his own developmental level, he has abilities, needs, drives and past experiences which are unique. Further, his cognitive style causes him to learn best through a pattern of experiences which might not be optimal for another learner. These variations in human learners must be considered when writing objectives.

Although awareness of the principle of individual differences must be reflected in an objective, the needs of society must also be considered by the planner of educational experiences.

The requirement that objectives focus on observable behavior is in the interest of assuring a high degree of relationship between ends and means (objectives and procedure); and to facilitate the continuous evaluation of pupils' progress.

Module Series B

Objective: (Summarized) The teacher uses a variety of media appropriately, sampling liberally from the following continua: individual-group; structured-unstructured; concrete-abstract; teacher made-commercial; in order to adapt the learning experiences to the uniqueness of individual learners and to the needs of society.

Rationale: Experiences, from which learning is to result, consist of a variety of arrangments of the learners' environments. Manipulation of the environment is often the role of the teacher, sometimes the role of the learner or his fellow learners, and often combinations of these potential participants in the learning process.

The teacher is responsible for selecting the experiences which cause desired learnings and must answer a variety of questions in planning the arrangement of the learners' environments. Is interaction between the learning medium and the learner to take place on an individualized basis or in a group or groups? To what extent should the experience be structured for the various individuals who will be interacting with the media? To what extent are the various learners able to manipulate abstract symbols? How concrete should the experience be for each learner?

Source of media is also considered by the designer of learning experiences. Is the material needed available commercially? At what cost? Can the teacher efficiently produce the required materials for learning?

The uniqueness in learning styles must be considered by the arranger of learning experiences. He must also be certain that the experiences are adapted to the developmental level, abilities and needs of the individual learners. The drives and past experiences of each learner must also be considered when selecting, designing and organizing learning experiences.

Module Series C

Objective: (Summarized) The teacher provides for sequencing of learning experiences (both short and long range) to insure maximum efficiency in reaching objectives without undue infringement upon the uniqueness of individuals.

Rationale: Elements of a learning experience, like colors in a painting, are often similar to the elements of a learning experience aimed at a different objective. While the elements may be similar, the way in which those elements are combined with varying emphasis, sequence and length, causes each learning experience (like each painting) to be different.

An ability to correctly gauge the uniqueness of learners is essential for teachers so that experiences can be organized for groups of learners in most appropriate sequences in those cases where the learners cannot auto-sequence their experiences individually.

Where auto-sequencing is a viable alternative for the learner, the teacher must be able to aid in the providing of a given experience when needed by the individual learner.

Module Series D

Objective: (Summarized) The teacher frequently evaluates the learner's progress in reaching goals, using a variety of approaches and instruments; identifying specific barriers to learning encountered by individual learners.

Rationale: If the teacher is to truly function as a guide in the learning process he must gather evidence to help him guage the progress of learners toward objectives. The learner himself must become the ultimate consumer of evaluative data and make adjustments of effort and direction. The teacher, however, can make changes in the learning activities and environment which will alter the learner's focus of interest level.

Some instructional objectives can be tested directly through standardized or teacher-constructed tests. Progress toward some other objectives can only be measured by situational tests which vary from natural real situations to simulated events. The collection and analysis of certain types of evaluative information can be done by peers and/or the learner himself through built-in feedback and self-evaluation devices.

Teachers must be highly skilled in arranging for the collection and analysis of such information if the diagnostic approach to teaching is to be used.

Module Series E

Objective: (Summarized) The teacher and/or the learner will pursue the objectives until adequate progress is made toward those objectives, or will modify or abandon them.

Rationale: An important aspect of the teacher's role is that of decision-maker (or facilitator of decision-making). When has the learner made adequate progress, for his developmental levels, toward any given objective? The teacher must also determine when an objective is not sufficiently challenging for a learner or group of learners. Setting of new directions by encouraging pupil-initiated interests or altering the learning environment is the teacher's responsibility when it has been determined that the learner's attention should be refocused.

As a step in the diagnostic approach to teaching this direction-determining step could be likened to a physician's recommendations after considering all of the medical data on a patient. Sometimes the specifics of the direction-decision are made by the teacher, sometimes by the learner himself, often teacher and pupil collaborate in the process.

If teachers are to function adequately they must be skilled in this crucial step in guiding the learning process.

Module Series F.

Objective: (Summarized) The teacher maintains effective relationships with parents, colleagues, administrations and general public.

Rationale: The schools are instruments of society. Teachers, therefore must be sensitive to the needs and demands of the various aspects of the society to which his school should be responsive.

Parents of the children being taught are partners in the enterprise of helping each child to develop optimally so communication among parents and teachers is necessary. Also, other teachers and supporting professionals must be considered team members by a teacher. He must see them as willing and skilled individuals capable of providing specific help in facilitating the educative process for individual or groups of learners.

The school administrators at various levels must be available for communication with teachers for purposes of assisting in providing the time and means for educational experience when special help is needed. Teachers also must be conscious of the need to interpret their schools to the general public.

Module Series G

Objective: (Summarized) The teacher uses a variety of methods skillfully in performing various roles as a director of learning.

Rationale: Many principles from educational psychology have been applied and developed in the form of techniques or approaches useful in facilitating certain types of learning.

Examples of such techniques would be role playing, small group discussion and eliciting of creative products from the learner. In the area of clarify-relationships and processes and the developing of meaning for abstract concepts, the teacher must have skill in motivating the learner to attend to the presentation of symbols or to seek meanings for himself independently.

Additional skills are needed for the teacher to stimulate value-clarification activities. Ability to perceive problems and raise relevant and significant questions are among the specific procedures a teacher must master if he is to assist learners to understand what they prize in life.

Also, a teacher who is adequately prepared will realize the importance of providing a sufficient number of success experiences for learners and will have the ability to structure learning situations so each individual will meet with this success.

Within this module series will be opportunities to practice and integrate a variety of subsidiary learnings developed in other modules.

Module Series H

Objective: (Summarized) The teacher conducts administrative and routine professional tasks efficiently.

Rationale: Secondary in importance, but essential, the many types of skills needed by a teacher are those which deal with the everyday ordering, form-completion and record-keeping tasks.

Schools are making concentrated efforts to reduce the amount of such "extras" to be borne by the professional teacher by using automation and human aides and paraprofessionals. Nonetheless, there is a certain amount of detail that must be handled personally by a teacher if he is to be in tune with the learning problems of each child as well as possible solutions to those solutions. Such activities as staying informed on new materials being developed and the arranging and conducting of parent conferences would be examples.

Performing as an effective staff member, a solid link in a teaching team is also part of a teacher's many responsibilities. Taking part in faculty meetings and cooperating in the decision-making process as well as serving on committees effectively are the type of tasks assumed by teachers.

A teacher does not operate alone in an elementary school, rather he is more and more expected to teach cooperatively. Skills in interpersonal and group communication become indispensable as the interactive base of the teaching role is broadened.

Module Series I

Objective: (Summarized) The teacher maintains a satisfactory learning environment.

Rationale: Teachers interact with individual learners and with learners in groups of varying sizes. The very label, "teacher" suggests that the person filling that role is responsible for bringing about a change in those individuals with whom he interacts in a teacher-learner relationship.

Change in behavior does not take place in a vacuum. The environment in which the learning is to take place has an effect on what is actually learned. A learning environment consists of physical and psychological components. It is known that the physical surroundings affect the attitudes and resultant overt responses of individuals. The size and appearance of the physical environment must therefore be manipulated as a result of teacher action.

In addition to physical surroundings which are inanimate, there are the more subtle (usually) but more potent expressions of feelings by the teachers and fellow pupils.

Also bearing great significance for the teacher as he attempts to shape behavior is his use of direct and indirect, conscious and unconscious setting of values. What he says is valued as an important influence on learning; what he does an even greater influence. Understanding the various elements to be controlled and or considered and developing skill in affecting these elements is a necessary part of preparation for teaching.

Module Series J

Objective: (Summarized) The teacher continues to grow professionally and personally.

Rationale: Teachers, of all professionals, need to be committed to the principle of life-long learning. They must become more effective as practitioners, however, optimal professional growth cannot be achieved without continuing growth in the concomittant area of personal growth.

Just as a teacher defines learning for pupils as consisting of appropriate skills, understandings and attitudes, the teacher can use a parallel structure in guiding his own professional development. Skill is necessary for teaching so increased teaching skill is desired; likewise with understanding of education and the educative process and continuous clarifying and refining of values are prime requisites of professional growth.

Teachers also need to have an understanding of what it means to "become" to grow more self-actualizing and mature. Experiences are necessary for a teacher which will help him to develop a greater depth of self-understanding.

APPENDIX II
INDEPENDENT TEACHING STRATEGIES

A. TRI-LEVEL SEQUENCE OF MODULAR EXPERIENCES TO ACHIEVE THE GOAL OF CONDUCTING SUCCESSFUL PARENT-TEACHER CONFERENCES SUITED TO THE SOCIAL MATURITY LEVEL (S.M. as a Machiavelian or field independence score or as rated during interviews)

1. BEHAVIORS:

In order to conduct successful Parent-Teacher Conferences the subject will demonstrate the following behaviors:

a. Prepare for the interview by setting purpose, collecting data and materials informing parent of nature and details of conference, set proper environment, and follow school regulations.
b. Present themselves to the parent as businesslike, concerned, confident, and purposeful.
c. Etc.

2. READINESS FACTORS:

a. Knowledges: Cumulative records; other student records; Marking system; Local regulations concerning promotion, discipline, homework, etc.
b. Attitudes: Belief in ability and desire of parents to assist; Freedom from disabling social prejudices; etc.
c. Skills: Ability to listen; Ability to judge hidden purpose, etc.

3. EXPERIENCES:

Learner Characteristic

Learning Stages	Socially Mature	Socially Immature
CONCEPTUAL	Instructor led classroom discussions and analysis of audio and video-taped conferences to develop criteria for good conferences. Reading from selected bibliography and written assignment. Evaluate new tapes and point up and discuss basic knowledges and techniques needed.	Play act conferences from script. Identify areas of weaknesses and tailor readings to fit individual. Worksheets. Discussion leading to specially designed micro-conferences to develop techniques. Use reenforcement to increase confidence. Review the steps and criteria basic to conferencing.
PLANNING	Include conferences as normal part of simulated classroom workshop. Emphasize evaluation and development of new criteria for further role plays.	Start out taking parent's role. Carefully program difficulty of conferences and place with non-threatening partners. Supply external evaluation and reenforcement in addition to self-evaluation.

OPERATIONAL	Include three-way conferences during student teaching internship. Tape and evaluate.	Cooperatively plan three-way conferences and evaluate during student teaching.

B. STRUCTURING LEARNING EXPERIENCES SUITED TO THE ABSTRACT-CONCRETE VARIABLE

1. BEHAVIORS:

The prospective teacher will frequently but selectively reenforce appropriate behavior of learners.

2. EXPERIENCES:

Learner Characteristics

Learning Stages	Abstract	Concrete
CONCEPTUAL LEVEL	Students read assigned material on reenforcement theory, motivation, levels of aspiration and the role of the self-concept in the learning process. Through groups discussion of principles distilled from above reading students will tell value of frequently but selectively reenforcing appropriate behavior.	Small groups of students will use videotaped "simules" to react to pupil behavior. After each student-simule experience the small group will attempt to draw conclusions regarding the selection and appropriateness variables in reenforcement. Feedback can be obtained by student analysis of peer attempts with additional simules.
PLANNING	Students read instructor-prepared descriptions of pupils' backgrounds and specific behavioral incidents. They tell which behaviors they would reenforce and what the reenforcement would be.	Students study several children and react to live, observed experience, telling which behaviors they would reenforce for each child and their method of reenforcing. In small group of discussion using a video-tape of the experience they explain their selection of pupil behaviors and reenforcement devices.
OPERATIONAL	Students teach a small group of pupils with the experience analyzed and evaluated in a written paper. Students will explain in their papers why they reenforced particular behaviors and justify their choice of reenforcements. Audio taping of each experience will guide the student in re-calling the details.	Students teach a small group of pupils with the experience recorded on video-tape. The video-tape is self-analyzed by pupils. In a discussion with the instructor they explain their selection of pupil behaviors and reenforcement devices. They will also point out pupil behaviors which could possibly be attributed to the student's (teachers') reenforcement.

C. STRUCTURING LEARNING EXPERIENCES SUITED TO THE FIELD DEPENDENT-FIELD INDEPENDENT VARIABLE

1. **BEHAVIORS:**

   The prospective teacher will select objective which are appropriate to the needs of the learner.

2. **EXPERIENCES:**

Learner Characteristics

	Field Dependent Experiences	Field Independent Experiences
CONCEPTUAL LEVEL	Instructor led classroom discussions and activities and directed observations in the campus school with opportunity for pupil-instructor conferences.	Linear or branching programs can used with opportunities for opened responses. The focus of attention can often be a campus school classroom. Feedback can be provided in small programmed discussions where concepts are used. An empty seat left in the group can occasionally be occupied by the instructor where group evaluations can be supplemented by teacher evaluation.
PLANNING	Instructor led classroom discussions and planning sessions where plans can be evaluated both logically and under simulated condition.	The group and individualized programs mentioned above can also be used here. Planning activities can focus on a real classroom in the campus school or upon a simulated classroom. The major avenue for feedback is the programmed group discussion.
OPERATIONAL	Learner plans and executes plans with groups of children in the classroom. Opportunity is provided periodically for pupil-instructor conferences related to planning and evaluation and supervisory help is always available when needed.	The learner together with a group of about five peers would collectively plan a resource unit of instruction focused upon a continuum of behaviors leading to the achievement of a developmental task. The six prospective teachers would then teach their unit in a campus school classroom to a small group consisting of 1/6th of the class. It would be their problem to group the pupils appropriately and to select appropriate objectives for the members of their group. Feedback could come from three sources: 1. disgruntled pupils 2. planned group discussions with six teachers 3. conferences with instructor,

APPENDIX III
SYSTEM OUTLINE TEACHING STRATEGIES-INDEPENDENT MODULES

Primary Objectives	Teaching Strategy or Modular Unit	Secondary Objectives
A. Develops Objectives	Programming	B,C,D, & E
	"Prisoner" role play from cases and outside readings	A & C
B. Uses Media	Instructional Technology and Theory	C,D,E, & F
	Verbal Control (I.A., Questioning, Speech, Vocabulary, Reenforcement)	A,B,C,D,E, & F
	Student Cue Sensitivity Training	C,D, & E
	Classroom Diagnosis	A,C,D, & #
C. Sequences Learning Experiences	Case Study	A & B
	Educational Psychology-Training (Reenforcement schedules, practice, transfer)	A,B,D, & E
	Microteaching(Set, Frames of Reference, Closure)	B & E
	Unit Planning	A,B,D,E, & F
	Curriculum Study	A,B,C,E, & F
	Discovery Method	
D. Evaluate the Learners Progress	Peer Evaluation of Lessons	A,B,C,D,E, & F
	Programmed Statistics	

Primary Objectives	Teaching Strategy or Modular Unit	Secondary Objectives
	Test Making	A,B,C,E, & F
E. Maintains Effective Relationships with other Professionals	Parent-Teacher Role Plays	A,B,C,D,E, & F
	PTA Speech and Article for Newspaper followers by Irate Reporter-Role Play	A,B,C,D,E, & F
	Team Teaching	A,B,C,D, & E
F. Teacher Roles Supporting the Instructional Process	Sensitivity Training	
	Video Tape	
	Verbal Reinforcements	
	Groups Observation	A,B,C,D,E, & F
	Value Clarification Excercises	C & E
	Simulation	
	Classroom Management Package	
G. Conducts Administration and Routine Professional Tasks Efficiently	In-Basket of School Year	
H. Maintains a Satisfactory Learning Environment	Photosituations Technique	A,B,C,D,E, & F
	Simulation	
	Problems Package	
I. Continues to Grow Professionally and Personally	Professional Teacher (Life Career Game or Maze)	
	Research Module	Varies with Choice

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Stanford University School Of Education And The Stanford Center For Research And Development In Teaching. G. Wesley Sowards.

The proposal focuses on the preparation of teachers and auxiliary personnel for work with culturally disadvantaged children. Certain basic assumptions lie behind this proposal and are unique departures in teacher preparation. They are noted here and then amplified in the proposal.

1. There are enormous differences among ethnic and socio-economic sub-groups of American society and a single model of teacher preparation is no longer viable. Teacher preparation programs must become more client specific and be designed to provide differentiated training opportunities appropriate for the particular needs of the area and groups to be served.

2. The emerging trends toward differentiated staff are especially appropriate for schools in disadvantaged areas. An effective model will provide for simultaneous training of teachers and auxiliary personnel within the same over-all program, perhaps including training experience as teams.

3. Inter-institutional cooperation on a scale yet unknown in the training of educational personnel is needed to prepare the differentiated staff that schools are coming to require.

4. Individual elementary schools will be conceptualized increasingly to accommodate to the characteristics of the pupil population they serve and the staff they have to deploy. In the case of students who are culturally disadvantaged the overall design of the school in relation to program and organization will be fundamentally different from that which we now know.

The Rationale for a Client-Specific Program

This proposal focuses on the development of educational specifications for the preparation of school personnel for work with culturally disadvantaged children. This is consistent with our expressed belief that teacher preparation must become more client-specific in its orientation and conception. Differences among sub-populations of the totality of pupils need to be taken into account in a major way in the development of program specifications. Culturally disadvantaged children constitute several such sub-populations; they are not a homogeneous group. There are sufficient differences between Negro and Mexican-American children for instance, to call for differentiation in the way in which they are handled in school. There are social-class differences within any given ethnic group that must be taken into account. These social and ethnic differences are over and above individual differences (such as the hyperkinetic child, the aggressive child, the hurt child, etc.) which themselves constitute a set of differences to be dealt with in teacher preparation programs. Thus, even the client-specific commitment to focus on teachers for culturally disadvantaged children is anything but a narrow and restricted one. Internal complexities in this group demonstrates forcefully why the client-specific assumption we make it a necessary one; there are intra-group differences of consequence even here. We have chosen this particular client-orientation in this proposal too, because we feel that the more effective preparation of personnel to work with this child population is indeed of the highest priority in teacher education. In the context of current national problems and accepted national goals the more effective teaching of the disadvantaged has become an imperative in American education. We regard this need to be so evident as to need no documentation.

Differentiated Staff for Elementary Schools and Inter-Institutional Cooperation

We feel strongly, too, that elementary schools of the future, and especially those that involve the disadvantaged, will find it necessary to employ a differentiated staff in order to accomplish their educational mission. In one way or another they will use professional teachers with high levels of diagnostic and prescriptive skill, staff teachers with less professional competence but with great technical skill in teaching, paraprofessionals trained to assist both the professional and staff teachers in direct pupil-contact and indirect (support) ways, and non-professional personnel for clerical-like assistance as required. There will be great utilization of parents, too, as lay assistants in schools and classrooms, and especially in conjunction with educating the pupil population we are concerned with in this proposal. To all of these, though perhaps not integral to the team, will be added non-educational personnel, such as social workers, community agency workers and medical workers. This inevitable development seems to us to make two kinds of demands on preparation programs:

1. Role-specific training takes its place alongside client-specific training as something that must be dealt with.
2. Designs for the preparation of differentiated staff personnel must make provision for the several specific staff members to undergo much of their training together.

The first demand would be met in the model program we would develop by the preparation of separate sets of job specifications for each of the several roles envisioned to be necessary in a differentiated staff. These would concentrate on the professional teacher, the staff teacher, the paraprofessional technician, and the non-professional lay assistant. We further assume that the total job of preparation called for by the differentiated staff concept makes necessary inter-institutional cooperation on a scale and in a way as yet unknown in education. In our judgment universities, colleges, junior colleges, organized community action groups, and school systems must act together to meet the training requirements for these several types of personnel. The Standord faculty, through discussions with representatives of these groups, senses a great readiness to move in this direction in our geographic region among the institutions and agencies listed above, and we suspect that this potential exists across the nation. The best evidence of this in our region is the readiness for active involvement of persons from these other institutions in the preparation of the educational specifications required under this technical proposal.

A Fundamentally Different Elementary School

We believe, too, that the impact of client-specific training and differentiated staffing will result in the development of an elementary school fundamentally different from that which we know as typical. Efforts of the past several years seem to warrant the conclusion that simply providing more teachers and other personnel per twenty-five pupils is not sufficient. Instead, the roles of teacher and pupil will be modified; the curriculum will be cast in different terms to establish a greater sense of relevancy to the lives of pupils; teaching practices will be modified consistent with the nature of the disadvantaged child; settings in which to undergo instruction will be altered and varied. Community participation will increase and change in nature.

The belief that these kinds of changes in the school are imperative for success with culturally disadvantaged children permeates our thinking about the specifications that should be developed. The school, and the teacher in it, must come to be viewed essentially as a deliberate attempt to modify the learning styles and strategies of children from disadvantaged areas and, by changing the educational settings, help them to develop more effective patterns of participation in the school. The social and cultural distance between the home and the school is such that mothers of disadvantaged children often teach them to deal with the school as an institution and an authority structure rather than as a place to learn. Pupils tend, thusly, to be passive or compliant, or to act out and defy in school. Their home experience has not taught them alternative techniques for dealing with the school experience. We know something, too, of the learning styles of these children and the differences between them and other children. We can identify the cognitive strategies of lower class children and consider their implications for teaching strategies to be used with them. We are more acutely aware of the great lack of relevancy in the eyes of the pupils of much of the curriculum of the typical elementary school, and that it often seems to them to have very little to do with their lives. There are examples of the information that experience and research in Head Start and similar programs are now making available. It is essential that this new knowledge, and the new information to come from Project Follow Through, be utilized in the development of new models for training.

The implications of this for a fundamentally different model elementary school are many. For example:

1. The finer distinctions of information that we may perceive are lost on these children. Much of the information they have received and instruction they have undergone has been in the form of imperatives. They don't use the phrase "I think..."--either they know or they don't know one is dogmatic or ignorant. We need to restructure the relationship between the teacher and the pupil if this is to be overcome. Essentially it calls for a kind of shifting of the "power focus" from the teacher to the child in the interests of beginning an effective resocialization effort. The great status difference between "middle class" teacher and "lower class" child must be seen for what it is and steps taken to reduce it in the eyes of the pupils.

2. Special efforts must be made to introduce goals to be achieved and rewards to be sought in more life-relevant terms than is now the case. This will mean curriculum revision of a special kind for elementary schools that serve culturally different children.

3. There must be special efforts to use the group life from which these culturally different children come as a status-raiser for them to the extent possible. The fact that there are some very fine things in the sub-cultures form which these children come can be used to add to the ego-strength and sense of self-esteem of these children.

4. The setting in which a child undergoes instruction (size of group composition of groups, place a work) will be fitted to the individual child as required in the terms of "Child types" as mentioned earlier (hyperkinetic, etc.).

5. The social dynamics that operate in classrooms of culturally different children must be understood for what they are and utilized by the teacher if he is to be able to address himself to the task of teaching. Especially will he need to understand the way the peer culture works and the extent to which, if any, that it can be used to support and not thwart this work as teacher.

This is discussed at some length here to help one to anticipate the relationships of requirements for uniqueness in the preparation of educational personnel to work effectively with culturally different children and in the school they attend. It is also included to call attention to the need for the development in school systems right now of schools modeled in these terms that can serve as demonstration centers for trainees of the kind of school in which they will work, and training sites in which they can undergo a substantial part of their preparation experience. More is said of this later in relation to the requirements for cooperation between institutions of higher education and the schools that are called for in order to meet the requirements of the model programs we would develop.

The Stanford Proposal

Introduction

In this proposal we envision the development of specifications for preparing teachers and auxiliary personnel needed to implement a differentiated staff plan in an elementary school, focused especially on teaching culturally disadvantaged children. We plan to design the program to extend over a two-year period for trainees. Depending on the particular teaching role (professional teacher, staff teacher, para-professional, lay assistant) one is being prepared for this training experience would be a pre-baccalaureate or post-baccalaureate degree one. We suspect that the professional teacher preparation will be a graduate level program; the staff teacher may be either an undergraduate or graduate program; the para-professional and non-professional programs of preparation will be post-high school and centered in junior college, school systems or community organizations.

We have already noted the range of types of culturally disadvantaged children that trainees in such a program could anticipate working with, and effectiveness with some one or more of these child types could come to be a sub-specialty for any trainee. There will be sub-specialty possibilities focused on younger children and older children (in anticipation of the almost inevitable emergence of a more distinct "lower elementary - upper elementary or middle" school arrangement. Also there will be opportunity for a subject matter specialization in training consistent with the areas of the curriculum included in the elementary school, and especially in terms of the upper or middle school segment of the total operation.

The Selection of Trainees

The selection of trainees for preparation for work with the culturally disadvantaged is a crucial matter in our judgement. Two things need to be noted in relation to it. On the one hand, persons must be selected who have sufficient intelligence to be trained to perform the tasks called for in the role in which they will be serving. On the other hand, all who would work successfully with the disadvantaged must have a certain cluster of personality characteristics that are "natural" to them as a prerequisite for selection for training. This latter "natural" set of characteristics and predispositions can probably be altered little or produced in any great measure by training. We have in mind such characteristics as personal security and autonomy, openness, high tolerance for ambiguity, and for confusion and disorder, a genuine sense of humor, and so on.

Therefore, while we would not discount the usual sources of data available from applicants related to such factors as intelligence, emotional maturity, sociability, and physical well-being we would root our selection procedures in opportunities for contacts, largely informal in nature, with disadvantaged children. Selection would loom as an active process in which, through opportunities to work with such dhildren, both the candidate and the staff responsible for the program would have more defensible, first-hand information to use to help to decide:

1. Whether or not a given applicant should train for teaching at all.
2. Whether or not an applicant could anticipate success in working with culturally disadvantaged children.
3. Which of the several roles that an applicant might hope to be trained for is the most defensible one for him to pursue.

This, to a specified first-level set of procedures in which the usual paper kinds of data are requested for perusal would be designed on a second-level of procedures. These would center in a pre-program summer workshop experience in which all applicants would be required to participate and within which a wide variety of assessment procedures (paper and pencil, role playing, simulation, etc.) would be used. Applicants would have opportunities to be involved with a range of types of culturally disadvantaged children (Negro, Mexican-American, etc.) in a variety of situations and in a variety of roles including that of teacher. The goal would be to develop specifications for this workshop which would make of it a truly action-oriented selection procedure.

It should be noted, too, that a program such as we request the opportunity to model whould expect many applicants from among returning Peace Corps and Vista workers. A way must be designed to gain access to information on these candidates from their respective sponsoring agencies so that it can also be used in selection.

Experience Prior to Training

Given the several differentiated roles for which we would develop training program specifications, there is not a single set of experiences that are prerequisite to training. Prerequisites, to the extent that they are functional at all, would be specific to the role for which an applicant sought to be trained. As suggested earlier, for the para-professional and non-professional roles a high school education (and in specific instances even less) would seem to be an acceptable educational background to enter training. For the roles of professional and staff teacher a baccalaureate degree will undoubtedly be a necessary prerequisite to training, earned either integral to one's preparation to teach or prior to a graduate level program of teacher preparation.

This has not been done successfully in the past and must be done for the future.

We suspect that to one degree or another each of the several people to be trained would be required to develop skills that would fall into the following categories:

1. Curriculum development
2. Classroom instruction
3. Organization and coordination
4. Human relations
   a. In the management of pupils, individually and in groups
   b. In dealing with individual adults and adult groups in the community.
5. Subject matter

A set of pre-test procedures, based on stated performance criteria, would be developed as appropriate in relation to each of these identified categories of program training goals. These procedures would be used to ascertain the position of individual trainees with respect to the criterion behavior sought in each category. Such data would help to insure a proper individualization of training in light of trainee differences. Procedures would be developed for monitoring the performance of trainees during training so as to ascertain that the specified behavioral criteria are met and then maintained over time. We are most ready to state the required behavioral goals in relation to numbers one, two, and five above, although these will take on unique characteristics borne of the requirements for effective behavior with culturally disadvantaged pupils. Number three above we know least about because we have such little experience with differentiated staff arrangements and the identification of needed organizational and coordinating skills in that context. Number four we have been aware of for a long time in teaching, but only now are we coming to understand the priority which must be put on skills in this area if the teacher of the disadvantaged is to be successful at all. Classroom management, or discipline as it is sometimes referred to, is a major problem with such groups of pupils. The teacher, to be successful in this setting, is probably going to need additional and somewhat specialized training in the interpersonal skills that have to do with regulating the classroom in the face of unusually disinterested or passive kinds of children. Training will be required which will enable the teacher to understand the social dynamics of these classrooms, and the techniques of communicating effectively with several types of children that inhabit them. Delineating these goals in training terms will require the aid of professionals in group dynamics, in clinical psychology, in social work and in community organizations as well as in education.

Equally important is the growing need to develop interpersonal skills adequate to deal effectively with individual adults and adult groups in the neighborhoods and communities in which these disadvantaged children live. As power structures emerge in the slums and in the lower class part of society, the school and the teacher are increasingly their targets of concern. This puts additional and unique pressure on the teacher. What is needed is training that will help the teacher and his staff to engage the energy and support of these individuals and groups for the betterment of the school. We need more, not less, participation of the community in the affairs of the school in these neighborhoods. Thus our teachers will need training to learn to understand and to communicate with parents and others in the neighborhood. They must be helped to deal with the social and cultural differences that exist between teachers and parents from the lower classes, lest lines of communication never be opened as they must be. Thus, training goals that center on understanding the culture of the several ethnic groups involved, and in the sociology and psychology of the poor are imperative. And, the stating of these goals presents unique challenge.

Work on the identification of training program goals would make use initially of two projects underway at Stanford University. One centers in the Stanford Secondary Teacher Education program and is referred to as the project on the Stanford Appraisal Guide. This is a general behaviorally-oriented instrument used for evaluation purposes in that program. The instrument is built as a series of behaviors expected and trained for. This work sets a kind of model in procedure and content that can be used in developing the specifications that are proposed here. The other project operates within the Stanford Center for Research and Development in Teaching and is referred to as the Project on Technical Skills of Teaching. It has three major foci as a research and development enterprise: (a) the analysis of teaching into component tasks (such as explaining, reinforcing, and probing, (b) the development and empirical validation of effective ways of performing these tasks, and (c) the development of effective procedures for training teachers in these skills. The first and second of these foci are most relevant to the setting of training goals in this proposed program. The third will be instrumental in designing training arrangements that candidates would undergo.

Thus, the task as we see it for this aspect of the modeling job is to develop a fairly inclusive set of descriptions of teaching behavior as client-specific as possible and to adopt these descriptions as goals. In so doing, it may prove to be useful to develop a taxonomy of teaching behaviors that would make more apparent the differences in complexity between the several training goals to be achieved.

Professional Learning Experiences

The intent to suggest a model for the prepraration of several kinds of personnel all integral to an assumed differentiated staff plan makes special demands on the educational specifications to be presented in so far as the experiences trainees would undergo are concerned. For instance, one set of experiences is necessary to the development of the professional teacher with high level diagnostic and prescriptive skills in teaching. Something different is called for in the preparation of the para-professional who would assist such a teacher. We are not able to present in detail what these differences would be. That seems to us to be the essence of the task. But, clearly, our commitment to model a program that would prepare a total differentiated staff makes its demands on the training curriculum to be designed. Similarly the client-specific (culturally disadvantaged children) orientation we would take circumscribes our work to an extent.

Assuming that these learning experiences would extend over approximately a two year period, in one way or another, for each category of personnel to be trained, the following ideas are presented as having to be dealt with in the professional education program to be modeled:

1. Opportunity for the extension of trainees' subject matter preparation to or beyond the A.B. degree, in ways commensurate with the curriculum of the elementary school at the level (lower or middle school) at which the candidate wishes to teach and the role he wishes to fill.
2. Study of the social-cultural history of the ethnic groups whose children are to be taught, and their current place in Americanf society.
3. Study of culturally different children, psychologically and sociologically with particular attention to the several types of such children with whom teachers will be called upon to work.
4. Study of curriculum development and evaluation with special attention to the problem of establishing a frame of reference within which to understand the meaning of "curricular relevancy" for the culturally different.
5. Analysis of teaching practices which have been shown to be effective with culturally different children.
6. Study of the developing technologies of education and their special significance for work with culturally disadvantaged children.
7. Opportunities for the development of skills (diagnostic, prescriptive, implementive) specific to each of the roles present in a differentiated staff plan and effective with disadvantaged children.

Given the performance-orientation which the model we envision would take towards goals to be achieved with trainees, every effort would be made to specify a design for these professional learning experiences other than a simple pattern of courses. Such a design may not always be feasible; for instance, the social-cultural history of ethnic minority groups, although it will call for inter-departmental offerings that will be in-and-of-themselves an innovation on most campuses -- will usually appear as special courses. But much of the work to be offered in the college department of education should be designed with a behavioral focus and should be packageable accordingly. Thus, packages could be "entered", so to speak, by trainees at whatever point pre-test data revealed as appropriate. Additionally, this effort at individualization should provide for some recognition of the preferences of candidates for particular kinds of learning situations. Some candidates may learn well by means of closely supervised step-by-step practice and intensive group discussion; while others do better if left to organize their own pattern of materials or engage in isolated reflection on issues, as in an independent study. There should be a way to allow for such differentiations. That is, our specifications would attempt to permit recognition of the interaction between "aptitude" and "treatments". It would appear at this time that this recognition would be more feasible in seminar-like arrangements with a high problem focus, within which the need for and the nature of specified behaviors becomes apparent to the trainee.

It would seem, too, that trainees ought to have an opportunity to undergo much of their own instruction with the media that we would be urging them to use with the children they would teach. Thus, there would be a place in our final specifications for the utilization, in the teacher education program, or programmed instruction (computer-assisted if possible), role playing experimentation, simulation, and so on. This is to say that they should be taught as we would have them teach. Similarly, we would specify for the teacher trainer a balance in his methods of instruction between didactic and discovery-oriented styles of teaching.

Opportunities to be with culturally different children in both informal and formal settings, in and out of school, will be called for throughout the two year period. Such opportunities are necessary if the candidates are to come to a really useful understanding of the clients they would serve. We would anticipate the inclusion of parcticum situations for trainees throughout the two year period of preparation. These would be carefully specified to insure contact with a variety of types of culturally different children in several settings. These practicums would be relatively problem-specific in the sense of indicating what the trainee should derive from each one. A series of such practicums would be providedin the first year to highlight important cultural (sociologically oriented), developmental (psychologically oriented), and skill (language, etc.) differences within the population of culturally-different children. These practicums would also require the student to describe differences between children in these three dimensions. Before the first year was over those preparing for professional teaching roles would be asked to begin to integrate their descriptive skills with diagnostic and prescriptive skills. In these practicum situations, trainees would be serving as part-time aides in whatever setting was being used for clinical purposes. Their involvement would be tailored to the particular role in the differentiated staff team which they were preparing to fill after training.

In the second year, all trainees would serve as interns in the school setting, indeed in more than one such setting and with more than one kind of culturally disadvantaged child. The emphasis in these intern situations would be to provide experience in the role which the trainee would play in a differentiated staff, and to undergo his training in the context of an operating differentiated staff team. A variety of "on-line" situations in elementary schools would be used.

In both the first and second years of training, and in relation to specific goals to be achieved, considerable use would be made of micro-teaching, a concept invented and developed at this university a few years ago. The potential for new uses of micro-teaching, with its provisions for the control and manipulation of a series of variables (type of student, nature of subject matter, size of group, etc.) important to teaching would seem to be great in the program we would model. There would be useful ways to adapt micro-teaching most meaningfully to the several distinct roles for which we would be laying out training specifications. And, there would appear to be uses for an expanded kind of laboratory situations, ala micro-teaching, to give initial and specific training to total teams of staff as envisioned in differentiated staff plans, or to trouble-shoot particular problems that might develop in the operation of particular staff teams.

A word must be said here again about the extent to which, in our judgment, elementary schools must change in order to be effective with culturally different children. Candidates in a program such as we would design must have access to transformed schools. Thus, a network of schools, with the size depending on the extent of the training program, would need to be developed jointly by the preparing institution and the school system with which it would work. Such a net work would make it possible for training to be organized in the context in which we believe the future of such elementary school efforts will be case.

Provisions for Evaluation

In developing the educational specifications outlined, we would hope to avoid what has been a serious omission in most teacher preparation programs. Past programs have either ignored the need for evaluative measurement altogether or have been limited to the traditional pre-test post-test conception. A more effective approach would be to plan the evaluation function as a continuous measurement system of feedback and control that forms an integral part of the program as a whole. It would be our intent to conceive a model program that contained just such an evolutionary system, enabling the program to continuously collect information about itself and modify its operation accordingly. The program would help to provide for an adaptive stream of education and training over time without clear demarcations between pre-service and in-service stages of development. The program of preparation would be conceived to maintain an instructional and evaluational dialogue with its individual teacher-products indefinitely. If such a follow-up system could be designed so as to keep contact with its products by taking periodic census-type surveys, interviews, observations, etc., it should be possible to collect information to guide the adaptation process in the program. This would really be a design for carrying out planned longitudinal research that would provide continuing current task analysis data, a basis for reappraisal of training goals and comprehensive criterion data for program evaluation. Such data should not only help to guide continuous redesign of the pre-service aspect of candidates' training, but also indicate areas where in-service training might be useful to them; such a system would go far in helping to operationalize the concept of continuity in teacher education over the span of one's career.

We would develop specifications for such a system of feedback and evaluation as a part of the model program discussed in this technical proposal. Put more simply, we feel that most teacher preparation programs still operate with many untested assumptions central to the thinking of their designers. Such assumptions need to be tested enroute, so to speak, and the program modifiable while it continues to operate. It is this sort of information gathering arrangement that we would try to design.

Clearly the system we envision for program evaluation would gather considerable information that would need to be manipulated, stored, and retrieved almost at will if it is to be very useful. Hence, we will assume access to a computer facility adequate to the task as we develop our proposed model program. It seems to us to be imperative that institutions that prepare teachers, especially the so-called "big producers," have access to high-speed data processing facilities if they are to do the job of monitoring, following-up, assessing, etc. that are vital to the continuous up-dating of any program.

System Development Corporation. Marvin H. Goer.

Statement of Work

Tasks:

1. Perform a functional analysis of the teaching task and its environment through a review of the literature and through contact with teachers. administrators, and leaders in the field of elementary education.

2. Relate the purpose, scope, goals, and desired teacher characteristics to the program of preparation.

3. Develop specifications for the content of the preservice teacher training program to include outlines of courses of study, recommended sequencing and presentation techniques for the elementary teacher education program.

4. Develop recommendations for teacher educators in-service training, both in the college and in the local school system, which will assure their continual updating and sensitivity to change.

5. Develop a structure for elementary teacher in-service training as integrated extension of the preservice program.

6. Develop specifications for measuring prospective and in-service teacher behavior and performance patterns and provide a system for maintaining continuous profile information as a basis for review and evaluation of the program of preparation.

7. Develop specifications for minimum admission requirements, including alternate modes of pre-preparation, to the Elementary Teacher Training Program and develop tests to measure these requirements.

8. Develop specifications for the staffing of the Elementary Education segment of the College of Education to include qualifications and number ratio, and suggest extra-collegiate resources upon which the college may draw to acquire specialized resources in a cost-effective manner.

9. Develop specifications for the staffing and operation of the Division for Assessment and Program Improvement as a system integration unit. These specifications will include a detailed description of the input data to this division and the processing for output recommendations.

10. Develop specifications for the facilities, equipment, and administrative organization required to implement the prescribed program and indicate modifications, changes, and/or the requirement for new forms of teacher training organizations.

I. The Educational System of Concern

A. The Impact of Change

Any attempt to develop new programs or models for training teachers must take into account the environment in which formal education today takes place.

Today's environment may perhaps best be characterized in one word: change. The upheavals of the present day, in every area of like - science, politics, economics, leisure, religion, etc. - are affecting both traditional structures and the relationship of men to one another.

Criticisms of education, in particular of the public schools in America, are, in large part a response to this changing situation in society. The challenge that is presented to education today is not a choice between changing or not changing, but rather whether it will lead that change or merely accommodate it.

The changes in the institution of public education in America will be generated by the movement for more effective government; better use of scarce resources; changes in the nature of the transmission of information; reorganization of job-related skills and their procurement; trends toward centralization brought on by improvement in transportation and communication; the development of new teacher, teacher-related, and support roles; eventually, the increased use of biochemical learning and control; and extension of leisure time and the concept of life time education; and the generally diminishing distinctions between traditionally separate types of educational institutions - elementary and secondary school, and university, on-the-job and in-the-home training.

Perhaps the one change factor that bears the single, most important influence on education today is the rapid pace of technological development. It has been pointed out by several social critics, in fact, that an imbalance has been created because one narrow channel of man's endeavors - technology - has outdistanced all the others, leaving the social, political, economic, and educational systems trailing somewhat behind. At the same time, these technological advances have provided more leisure time for reflection on the inadequacies of the social, political, economic, and educational systems.

Evolving technology has provided education with a whole new set of teaching-learning tools, new media and communications devices, teaching machines and other aides to do its job. Each additional tools are created while others become obsolete. On another level, however, new technology has challenged the very nature of the learning fabric, including the question of what is to be taught and what it is that people need to know. There is little agreement about content and proportions of curriculum. This has led several educational critics to suggest that required content, including facts and concepts, and processes, including development of concepts and organizing problems, cannot and should not be predicted. More generally, a trend appears to be developing that places the emphasis in education on developing bright people, who are interested in learning and capable of learning whatever is required at a given time, rather than on describing a set of specific subjects which are then rigidly forced on each child in a fixed formula. The emphasis appears to be shifting to centering learning on the individual child, rather than on subject matter.

Similarly, the emphasis is shifting from belief in a set of fixed educational techniques which will "insure" learning, to the understanding of individual learning "styles" (verbal, non-verbal, literate, etc.) and the belief that the most important learning is that which is based on the individual's own experiences.

The implications of this for teacher training are that what is required to develop children who are flexible learners is required also for the training of their teachers; i.e., teachers must be flexible learners and adaptable to change. The way they are taught should be tailored as nearly as possible to their own learning style and life experiences.

The teacher who is receiving his initial training today will work in a world marked by changes, many of which are unpredictable. Indeed, the whole nature of the educative process may be subject to change, and the functions assigned by society to the schools may either broaden to include all of the social welfare needs or be narrowed to a concentration on intellectual development and training in basic skills. Teacher education programs, therefore must be designed to prepare an individual who can adapt to these prospective changes, who will be flexible in his approach to his task, and who will be able to promote a change and development within the institution.

B. The Restrictions of Reality

Educational models must be developed within the context of the forces presently controlling the schools and influencing the direction of teacher education. At the present time, teacher preparation is controlled primarily through the teacher certification requirements established by the several states, by the policies of state and local school boards, by the school administrators who select teacher candidates and who provide the supplementary experience programs for new teachers, by pressure groups who actively promote a specific cause, and by the profession itself, a rather self-conscious, loosely structured, highly powerful force seeking the general improvement and upgrading of the teacher's position in society.

Teacher education is provided by four kinds of institutions sensitive to the above pressures: the liberal arts college, the teacher's college, the university (undergraduate), and the professional college of education within the university. Each of these institutions brings to bear a varying set of stresses and strains stemming from its philosophical approach to knowledge and learning. Generally, the liberal arts college will espouse a teacher preparation program stressing the "academic", and the teacher's college will tend towards the "experiential" or methods of teaching" approach.

Recently, research has aided in defining the teaching task, the role(s) of the teacher in the classroom, the nature of knowledge and the learning process. All evidence indicates that this research is not being translated into viable programs of teacher preparation. The status quo pressures exerted by the forces indicated above account in part for this failure of teacher education to keep pace. Additionally, there has been insufficient support by the public as well as by the profession for the development of adequate teacher training programs. Yet, as education continues to rise in cost, and as the public continues to demenad a "better" education for an increasing percentage of the population, radical improvements will be required in the preparation of professional personnel within the field.

In an attempt to build educational models and/or teacher training models that are responsive to a changing society and a changing educational situation, it is not sufficient to merely describe the change taking place and thereby project requirements for the future. For a program of training to be meaningful, it must also take into account the realities - both the potentialities and the limitations - of the point where it is and from which it must start.

Initital enviromental restrictions include:

1. Teacher certification requirements, which vary from state to state, and which establish the outer limits for curricula experimentation.
2. Local and state school boards which establish personnel policies and which are of necessity, responsive to the political atmosphere of their respective locales.
3. Individual school administrations, which must manage many relationships, both within and outside of the school itself, as well as managing the physical facilities and their functioning.
4. Parents' associations, which may or may not demand an active role in local school systems.
5. The profession itself.

In addition to these elements, any attempt at constructing a new model must consider the fact that both the trainees, as well as the trainers, are themselves products of the eudcational systems that have gone before them and have been shaped in the light of that thinking, for better or worse. Teacher training programs, then, should plan both for orienting teachers to the above realities and for interfacing their programs with this present system.

C. The Teacher

In addition to being responsive to changes in society and education, a model teacher training program must also recognize the person who will teach.

For the most part, those who enter teacher training programs are young men and women, just out of high school, between the ages of 18 and 22. Their life experiences are fairly limited and they may have had only a minimal opportunity to explore and develop any strong outside interests.

> "When the student begins his professional work, his concepts tend to be limited to the classroom aspects of teaching; that is, he sees a teacher in a classroom with a group of students. He is likely to consider teaching as telling students about his subject. His immediate concerns are not likely to be broad enough to include within his scheme the teacher as a member of the community or member of a profession. At this point in his development there is also some question about the prospective teacher's deep concern about the school as a social institution or for the child as a learner. And further, the teacher education student may have a negative orientation to professional preparation since he has been subjected to the current conflicts about teacher education.
>
> "If the conditions outlined above are correct, or even only partially correct, and the idea of reorganization and extension of concepts is accepted, the first effort in professional education should begin with the concepts that are directly related to the classroom functions of the teacher. As the scheme of the student is extended, concepts now considered of less immediate concern may be added in orderly sequence."[1]

This indicates that a teacher training program, then, must be developed in the same way a training program for the education of children is developed. That is, a teacher training program should be:

1. Based on the prospective teacher's present experiences.
2. Provide ample opportunity for developing his/her own natural interests.
3. Built on experiences which will develop an eagerness to learn and face change.

An additional point is required for a training program: that teachers do not learn how to teach so much by teaching, as they do by being subjected to different types of learning themselves, and being stimulated to reflect on these experiences, so that they develop a sense themselves of what best produces learning in others.

D. Current Literature

Current literature and research findings on the theory, practice, and projections of American education abound in descriptions of what is wrong with schools. Much of the attack focuses on the failures of programs for training teachers. Some of the better works go beyond criticism of the present situation to suggest solutions to the problem. However, suggested improvements have tended to fall into one of two categories: (1) piecemeal (2) studies of the output of the educational system where conclusions are unsubstantiated assumptions. In depth research, on the one hand, has addressed itself largely to only small fractions of the total picture, such as "the cognitive processes in early childhood learning". On the other hand, studies which have attempted to deal with the total problem of education or a sizable portion of it, have tended to be "broad brush" in approach and are based less on painstaking analysis of the relation of the current situation to development of something better, than on an urgency for change and a description of the desired end product. A disproportionate amount of effort has been directed to projecting for 1980 and beyond, while insufficient attention has been paid to analyzing existing factors.

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[1] Preservice Professional Component of a Program of Teacher Education, copyright 1964, AACTE.

Both types of literature and research are of enormous importance in any type of educational planning, but neither, in itself, is capable of providing the tools required to develop programmatic models for teacher training.

The teacher training model must be one which is (1) capable of interfacing with the present system, and (2) capable of simultaneously responding and looking forward to a changing society-while not losing track of who the teacher is in the process. The key to developing such a model is to develop one which provides the optimum set of known learning exposure and measures the effectiveness of these exposures so that the program may be constantly improved.

II. Components of a Teacher Education Model

The model to be developed for teacher education will be developed within the context of the changing role of the teacher and the future of society. In addition, it will be developed through the use of some new planning techniques not usually applied to educational problems. The major group of techniques to be employed is generally collected under the heading of "systems procedures". This approach requires that the model begin by describing the present situation, by showing changes required and the problems encountered in bringing about these changes, by defining the processes for solving these problems and the resources required to do the job, and by developing and operating a continuous program of evaluation and feedback, so that the system can be continually modified in order to assure achievement of its stated goals.

The development of an adequate model, using the systems procedures, requires that the designers first address themselves to these questions:

- What are the functions of the elementary teacher in the context of the school situation?

Adequate models of teacher education must be based on clear-cut analysis of the significant functions evolved from the relationship between knowledge and students; others involve the teacher's ability to understand and forsee genetic growth. Still others are concerned with the selection and development of materials, the organization of the learning environment, requiring the teacher to perform many team roles--in relation to a principal, other teachers, the community (especially the parents of his students), and as leader and member of an "instructional team", including individuals with whom he has direct and indirect communication.

A functional analysis of the classroom teacher will, therefore, indicate the significant functions, rank the functions according to their importance and required sophistication of training and experience, suggest those requiring a "teacher" and those which can be performed by less highly trained personnel, and, thus, will form a unique basis from which to develop the requirements for teacher education.

- *What knowledge--ideas, attitudes, skills, and facts--is required to perform the functions required by the elementary teacher?*

While the traditional debates over the preparation of teachers have consistently concentrated on this question as distinct (and usually unrelated) from the preceding one, little information has been generated defining what a teacher needs to know in order to teach. *Is there a unique professional knowledge?* The question is not productive until the functional requirements are defined and then knowledge is related to them.

This statement should not suggest that teaching can be reduced to a number of relatively uncomplicated skills which can be developed through the acquisition of static information. Teaching is a highly complex activity, as much an art as a science. Nevertheless, recent research has indicated some of the kinds of things effective teachers know and some of the kinds of skills and informations which can aid the performance of the teaching functions. An effective model for teacher education will view knowledge in this manner--as related to the performance of the defined task. An additional benefit of this viewpoint teachers are able to relate their knowledge activities to their career plans. This viewpoint also provides a basis for individual "discovery" and conceptualization on the part of the prospective teacher.

- *What experience--observations, interactions, application--are required by the prospective teacher in order to provide a background for understanding the real world of teaching?*

Research indicates that the prospective teacher candidate has a considerably limited background from which to view himself in the role of teacher. Experiences, therefore, must be designed which have as their basis not only the acquisition of knowledge but the promotion of discovery and self-insight. At a later point in the program, the nature of the experience program will change to include acquired knowledge and its application to the teaching situation.

- *How can this analysis of functions, and concomitant knowledge and experience, be stated in terms of program goals?*

Since teaching is a complex function, the goals for the teacher education program cannot be stated simply in terms of the specific skills and knowledge required for the separate tasks, and, as has been suggested earlier, the changing role of the teacher requires that there be a high degree of flexibility in the teacher's perception of himself. In addition, research indicates clearly that much of the important education of the teacher occurs during the first years of teaching and after the initial period of preparation. Program goals, therefore, should be stated for both the initial teacher education program and for the in-service program accompanying the teacher's initial experience.

Goals for the teacher education program should be stated in terms of the *nature of the person required for the job*. In part, these goals will reflect the functions of the task and the many roles the teacher will be called upon to play. Basic to these considerations, however, will be the person behind these tasks and roles. *The goal of teacher education is the development of self-actualizing, integrated persons capable of fully functioning within the evolving institution of the elementary school*. Beginning with this, Figure 2 indicates the major objectives for the teacher education program for both the end of the initial training period and the end of a five-year initial period of experience and in-service education.

Within each of these objectives, it is necessary to question what knowledge, skills, attitudes, experiences, and self-insights are required in order to achieve the level of functional proficiency required by the objectives. The answer to this question forms the basis for the design of curricular experiences.

This system of goals for the teacher education program implies some basic postulates for the adequate preparation of teachers. It is, therefore, appropriate to discuss each of these areas briefly:

Integrated Self-Effective Person

It is assumed that self-integration is basic to successful work with children. The teacher should be provided the opportunity to examine his motivations carefully, his needs and drives, and his relations to others and to himself. The concepts of Carl Rogers, Erich Fromm, Rollo May, and others explain what is intended in this area. The effective teacher is able to bring the total self to the teaching situation, but he is able to see that self as greater than the role of the teacher. The deliberate development of such a view of self appears a serious omission of present teacher preparation programs.*

Group Member Roles Proficiency

Teaching is too frequently viewed as a unilateral function in which the teacher is seen as superior and the student inferior in authority, responsibility, and initiative. The number of alternative roles available to the teacher in dealing with students needs to be explored further, but already research in this area is far ahead of development in programs of teacher preparation. Teachers are frequently unable to select alternative roles because they lack knowledge of the alternatives available to them. This handicap seriously undermines the ability of the teacher to adjust to different types of students.

This may be stated in another way. To an increasing degree, the teacher is becoming a member of a team, a highly sophisticated group of experts involved in the preparation, delivery, and evaluation of educational experiences. Team teaching is now a common technique, but the new technologies and the force of such extra-educational agencies as the "educational industries" and the learning research and development centers will require greater flexibility on the part of the teacher than was necessary within the self-contained classroom. The "teacher as generalist" and the

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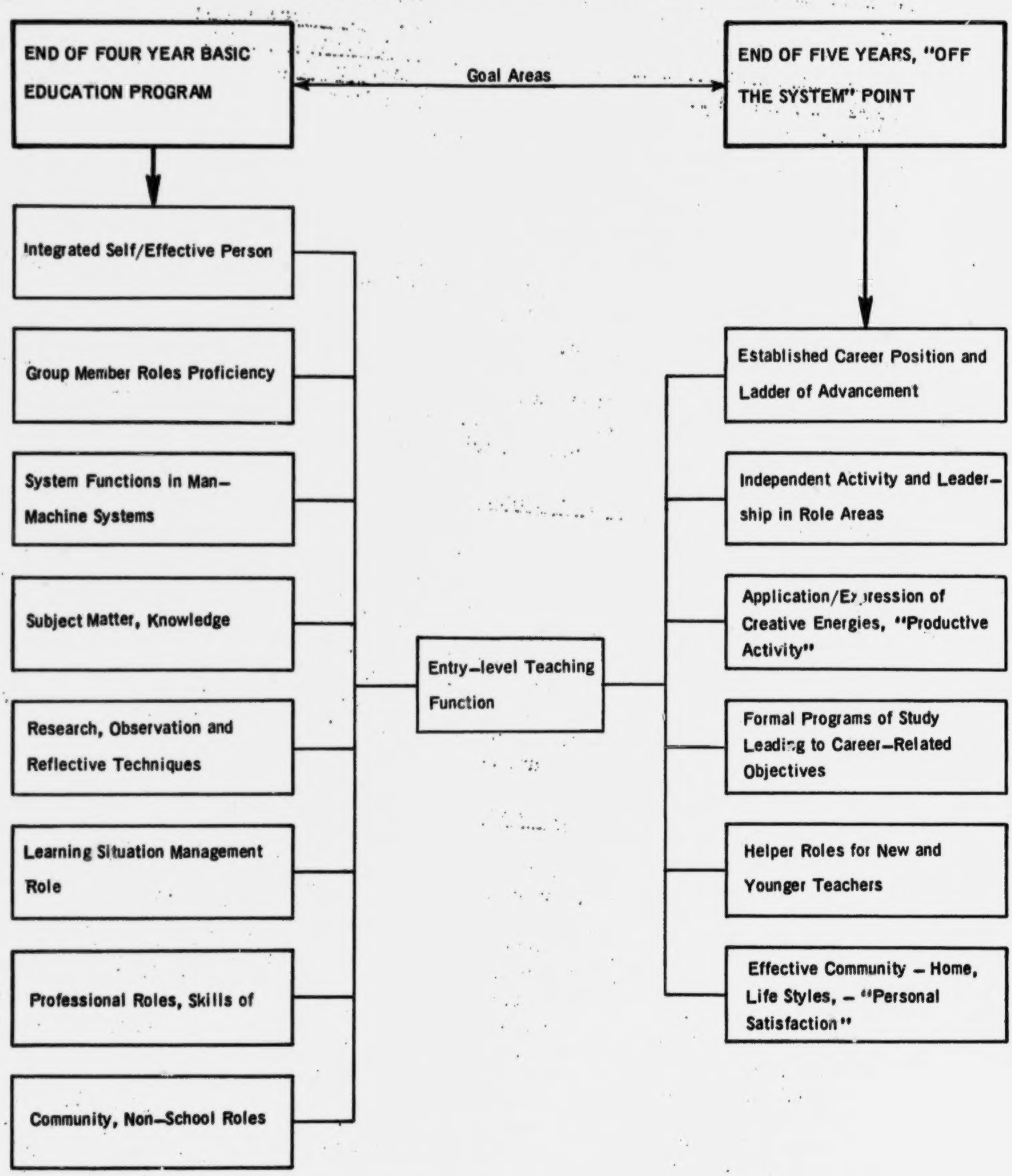
TEACHER EDUCATION PROGRAM OUTPUT ANALYSIS


END OF FOUR YEAR BASIC EDUCATION PROGRAM
Goal Areas
END OF FIVE YEARS, "OFF THE SYSTEM" POINT
Integrated Self/Effective Person
Group Member Roles Proficiency
System Functions in Man–Machine Systems
Subject Matter, Knowledge
Research, Observation and Reflective Techniques
Learning Situation Management Role
Professional Roles, Skills of
Community, Non–School Roles
Entry–level Teaching Function
Established Career Position and Ladder of Advancement
Independent Activity and Leadership in Role Areas
Application/Expression of Creative Energies, "Productive Activity"
Formal Programs of Study Leading to Career–Related Objectives
Helper Roles for New and Younger Teachers
Effective Community – Home, Life Styles, – "Personal Satisfaction"

3

"teacher as specialist" require explication and training within the context of the teacher education program.

System Functions in Man-Machine Systems

A "man-machine" system implies that specific functions are defined and then assigned to either the man or the machine or a combination of both. If the system is effective, both the man and the machine (actually many of both) are functioning according to the specifications predetermined for the system. To many educators, this concept appears to dehumanize teaching, yet, in fact, the use of modern technologies may free the teacher from the limitations of his own knowledge, from the necessity for constant low-level, repetitive activity, and from much of the day-to-day burden of routine clerical and administrative activity. In turn, man-machine systems offer the potential for increasing, individualized instruction, for permitting the teacher time to work with groups and individuals in a close, personal basis, and for enriching the learning environment of every student.

Man-machine systems are taking an increasing role in education and they require that prospective teachers develop adequate attitudes, knowledge, and skills to deal with themselves and with the array of machines to be found in the modern classroom. The development of integrated educational systems appears close at hand. The implications of these developments, however, have not been adequately discussed nor are they adequately provided for in the preparation of teachers.

Subject Matter-Knowledge

The prospective elementary teacher should be well grounded and proficient in those areas of knowledge found necessary for the task of teaching. Since there is such broad disagreement on just what the teacher should know, this question will not be addressed at this time, except to suggest that the elementary teacher should be well grounded in the basic communications skills, knowledge of the culture, history, and traditions of the country, knowledge of basic scientific principles, and a high level of "general information". The significant issue in subject matter-knowledge is not the what; it is the how. Teachers should be flexible in their knowledge, capable of broad application and discovery, creative in their problem analysis, and receptive to new information and conceptualizations. The goals of the subject matter-knowledge programs, therefore, should be stated in terms of the how of knowledge.

Research, Observation, and Reflective Techniques

Each teacher should be capable of using basic statistics, of understanding the various approaches to research-scientific, historical, quantitative, of accepting and applying research findings, of understanding and interpreting test results, and of designing research projects to pinpoint needed changes and improvements within the classroom. The goals of this block should be stated in terms of the applications of research to the ongoing teaching process. Indeed, the development of computer-based management systems can provide the teacher with too much information, unless he is capable of developing this information within an appropriate context. Perhaps the leading contribution of systems procedures to education is the concept of "feedback", or a continual supply of diagnostic and corrective information to the system as it operates. Teachers will require sophisticated training in the production, control, and use of such information sources. Of more significance than increased information, however, appears an attitude towards the task implied by research methodology. The teacher is asked to be introspective about the job of teaching, to be critical about observations of students and their environment, and to be critically aware of the implications of feedback received from research. No area of educational development is more important today, or generally, more totally overlooked (or reduced to the innocuous under the guise of test and measurement) than the area of research.

Learning Situation Management Functions

The teacher is a manager in exactly the same sense that an individual manages a production process. As such, the teacher must possess management skills-planning, organizing, operating, developing, staffing, supplying, producing, and evaluating. This management task will tend to become the central role of teaching as more and more technical assistance becomes available to support the classroom situation. Despite this trend, the tasks of the classroom are not generally approached according to the principles of effective management. Much time could be saved through developing in teachers the attitudes and values of modern management. The goals of this area should be stated in terms of the functions related to the operation and control of the total teaching (learning and all other associated activities) task.

Professional Roles

The teacher as a professional finds himself called upon to function according to generally accepted patterns of behavior, both inside and outside of the school. His professional responsibilities require his acceptance of roles and tasks unrelated to the direct work of the classroom. The prospective teacher should have adequate opportunity to examine the meaning and the implications of the profession of teaching, the nature of the profession and its demands, the organizations and associations pretending to represent the profession, and the expectations placed upon him as a potential professional. This area appears particularly significant as it relates to the acceptance of the other roles defined herein and as it relates to the individual's acceptance of himself within the context of teacher.

Community, Non-School Roles

The teacher performs many roles as a family member and as a member of a community. The skills and attitudes required to effectively fulfill these roles are frequently radically different than those required to teach. At the same time, the school and the community appear to be communicating.

on a closer basis than was previously the case, at least as measured by the cooperation among other social service agencies, planning organizations, and citizens groups for the schools. The goals of the non-school role area should be stated in terms of the needs of the individual for effective performance in other than teaching roles, but these goals should be developed within a context which views the prospective teacher as a total person and as a highly trained member of the community.

How can a program of teacher preparation be organized to achieve these goals?

This proposal suggests that a basic difficulty with present programs of teacher education rests with their failure to begin by planning learning experiences which achieve goals related to the functions of teaching. One need not look far to discover that the majority of preservice work presented to teacher candidates is organized along subject-matter lines or is generally blocked out in "core" and "educational (or professional) sequence" segments which have as their purpose, and as their measure of achievement, only knowledge goals. A basic need within the field of elementary education at this time is an analysis of the form and organization of knowledge and experience requisite for the prospective teacher. This effort will require broad research and analysis, but while this analysis is being performed, several important guidelines can be developed from the form of the required approach. These guidelines tend to suggest the quality of the program rather than the nature of its content.

- All program experiences should generate from statements of goals and should be related to these goals.
- All program experiences should provide thoroughnes and understanding of the basic concepts of the subject under consideration, including the ability to discover and to apply.
- All program experiences should be designed for effective presentation, including the maximum of student activity, utilizing the modes known or rationally assumed to be most effective for presentation.
- All program experiences should be designed for maximum efficiency in presentation, based upon preservation of the critical resource, which, in this case, is assumed to be student time.
- All program experiences should utilize measures of cost effectiveness in development and presentation insofar as cost effectiveness does not require sacrifice of the critical resource, student time.
- All programs, should be organized sequentially, insofar as this is possible, to include attention to individual cognitive styles, prior background and experience, and special learning difficulties.
- All programs should be designed to provide a constant system of feedback first to the student on his progress and standing, second to the teacher on the success of the particular program, and third to the institution on the relation of the particular program to the total program of teacher preparation.

It will be noted that several considerations for program development have been omitted from this list of considrations, most significant among these omissions being duration, credit, content, and institution. If a program of effective teacher preparation is to be developed, it must begin by first determining what is necessary to achieve the goals, perhaps under ideal conditions. After the necessary tasks and learnings have been delineated and organized, they can then be combined into effective units, or blocks, which resemble in form the traditional organization of a program of higher education. At this juncture, much of the planning in this area has suffered because of its concern with duration and credit, and the acceptance of appropriate accreditation agencies of the form of experience. What is being suggested here is that first a design be prepared and then it be related to the institution.

Essential Aspects of the Model Program

The model will be developed to contain within itself a mechanism for self-modification in response to "change" and also to provide data to insure continuing program improvement. This statement implies that certain kinds of information will be required, not only prior to the operation of the program, but continuously throughout the duration of the program. Further, methods will be incorporated within the model for the regular change and adjustment of the program.

Four kinds of information will be required for effective development and continued evaluation of the program:

Input Information

Input information will include a close analysis of the prospective student in terms of his ability to successfully meet the requirements of the program intellectually, socially, emotionally, and personally. Close attention will be directed towards the analysis and correction of deficiencies in individuals who appear capable of performing within the program. A careful evaluation will be made of other than formal school experiences, i.e., Job Corps, para-professional experience, remedial and adult education programs, so as to provide the maximum access to the program based on achievement and potential levels, rather than on the automatic completion of assigned grade levels.

Other kinds of input information will include an extensive review and analysis of the research in elementary education and communication with a broad selection of experts and practitioners within the field. This information will significantly determine the direction and definition of programs.

A major difficulty of teacher education programs results from the time lag between change in the school situation, research implementation in the education program. In effect, a teacher must be educated to perform a task in an institution whose definition, scope, and goal are constantly changing. This difficulty can, in part, be obviated through a regular and deliberate program of background information.

Process Information

The program will include regular checkpoints so that adjustments can be made in the work of a particular student or group of students at significant intervals during the preparatory process. These adjustments will stem from the work of the student, from changes in the direction or sequential organization of the program, or from the perceived failure of the program to achieve the stated goals. (As well, goals may be adjusted and changed during the course of the program.) Effective measures of process will be included in the development of each program element and as parts of the overall program design.

Output Information

The implementation of a program of this nature requires a considerable time lag between preparation and the measurement of the results of that training; in fact, a six or seven year delay in measurement is not unreasonable. Output measures, therefore, will be designed to include attention to the teacher's performance over a considerable period beyond the completion of the initial program. These measurements will include not only relevant indices concerning teacher performance, but they will include the effectiveness of teachers as measured by student indices of achievement, attitude, and development. Attempts will be made to discover the kinds of teacher preparation which have positive effects on students through the development of a carefully thought out program of measurement. This type of measurement will mark an important part of future planning for the preparation of teachers.

III. A Basic Program Design Model

The program model began with an analysis of the functions involved in teaching and of the knowledge and experience related to the functions. The output of the analysis was then described in terms of objectives. These objectives, in turn, suggest a basic model for the design of a program for teacher education. It is important to note that both the goal areas and the programs suggested by this approach are theoretical approximations used on a focal point during the initial stages of the study. Thorough reviews of the literature and insights developed through contact with operating school districts, as well as a functional view of teaching, may serve to change both the nature and the scope of the model, but for the moment the framework prrsented in this section will serve as an initial outline of the working model.

The model for teacher education contains two sections: (1) preservice education and (2) in-service education. There is a considerable variance of opinion as to whether teacher educational activities should take place prior to or after the initial teaching experience. The feedback and evaluation mechanisms developed by this study will give meaning to the sequencing of particular activities, but for now adequate information is for the most part, unavailable.

The flow chart presented in this section avoids mention of specific times, credits, or emphasis on specific units within the program. Presently it represents a sequential ordering of the major blocks of study, but this consideration will be subject to later evaluation. There appears some advantage in using this approach, because the model can represent a sequential program covering a period of time and, therefore, be adaptable to the requisites of an educational institution. It is stressed again, however, that the blocks represent only general areas of endeavor stemming from the major goal areas. Specific content and presentation modes will be determined only after careful analysis of functions and statements of program goals.

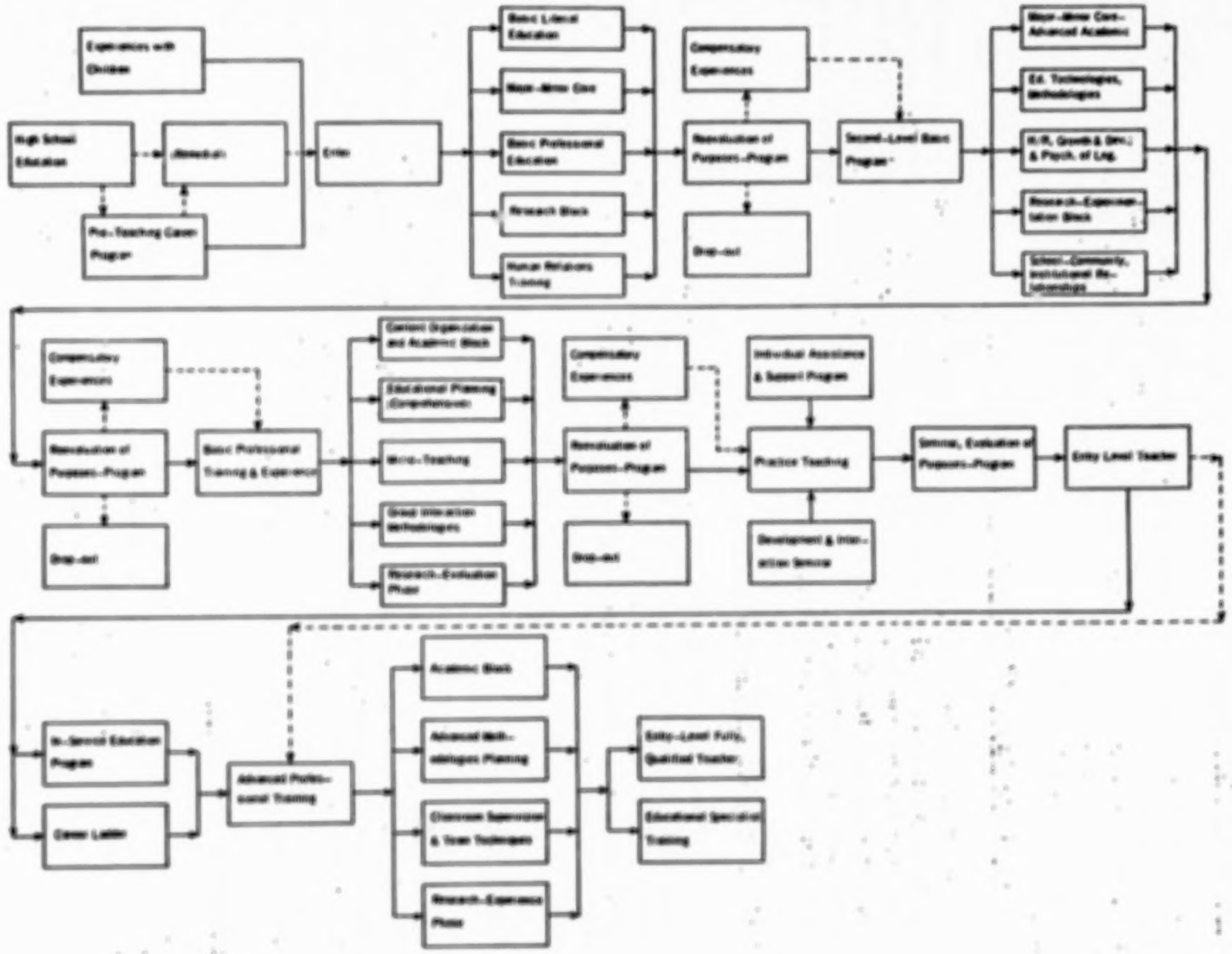
Several assumptions govern the design of the basic model, and these should be explicated in order to provide the proper perspective for interpretation:

- The model assumes a basic entry level, but this level may be achieved by means other than formal schooling. Entry should be determined by a careful analysis of the individual's potential for success in the program and as a teacher.
- The model assumes that all experiences provided by the program of formal education will be organized in terms of the "world of the practicing teacher". The organization of content and the provision of experiences will be directed toward the goals of developing a fully functioning teacher. In this respect, the program represents the development of a program of technical training rather than a program of general education, but if the prospective teacher is to achieve excellence and thoroughness through his program, each segment will require a design which maintains the integrity of the material. Consequently, the process of general education is germane to the continuing design process.
- The model provides continual re-evaluation of purposes and program, along with a provision for compensatory experiences and review. It is assumed that the initial contact with this program will lead some individuals to decide that either the program of preparation for teaching or teaching itself is not the profession they wish to continue in. In fact, throughout the program students will be encouraged to make conscious decisions about their continuation in the program.
- The model assumes that student teaching and preparation for the student teaching experience is the single, most important aspect of the pre-service training program.
- In-service programs for entry level teachers are to be developed as continuations and logical extensions of the preservice training, except that the local school district will play a stronger role in determining the sequence and format of these programs than was true for the pre-service programs.
- While it is felt that some teaching experience should precede formal study beyond completion of the preservice program, the model presents alternatives for advanced study.

The Preservice Training Model

The preservice training model is divided into four major divisions of study and experience: (1) basic preparation and background, (2) second-level basic preparation, (3) basic professional training and experience, and (4) practice teaching and related experiences. These divisions represent a progression from knowledge and experiences organized in terms of learning goals. Within each division, basic program components which

TEACHER EDUCATION PROGRAM COMPONENT FLOW CHART


Experiences with Children
High School Education
(Selection)
Pre-Teaching Career Program
Entry
Basic Liberal Education
Major–Minor Core
Basic Professional Education
Research Block
Human Relations Training
Compensatory Experiences
Reevaluation of Purposes–Program
Drop-out
Second–Level Basic Program
Major–Minor Core–Advanced Academic
Ed. Technologies, Methodologies
H/R, Growth & Dev., & Psych. of Lng.
Research–Experimentation Block
School–Community, Institutional Relationships
Compensatory Experiences
Reevaluation of Purposes–Program
Drop-out
Basic Professional Training & Experience
Content Organization and Academic Block
Educational Planning (Comprehensive)
Micro–Teaching
Group Interaction Methodologies
Research–Evaluation Phase
Compensatory Experiences
Reevaluation of Purposes–Program
Drop-out
Individual Assistance & Support Program
Practice Teaching
Development & Interaction Seminar
Seminar, Evaluation of Purposes–Program
Entry Level Teacher
In-Service Education Program
Career Ladder
Advanced Professional Training
Academic Block
Advanced Methodologies Planning
Classroom Supervision & Team Techniques
Research–Experience Phase
Entry–Level Fully, Qualified Teacher
Educational Specialist Training

represent program blocks for the attainment of the objectives are established. These components help suggest design questions within each component. A short description follows:

Basic Liberal Education

This component consists of the essentially intellectual pursuits which would be found requisite to a fully functioning elementary school teacher. Content should be organized in terms of the subjects to be included, but it should be directed towards the development of the teacher as a rational human being.

Major-Minor Core (and Advanced Academic)

It is assumed that the teacher should gain some academic specialization as appropriate not only for later teaching, but also to appreciate the discipline required for careful study of a given area of knowledge. This component provides for intensive study in one or more areas considered important for elementary education and following the special interests and abilities of the teacher candidate.

Basic Professional Education

This component should help the student relate to the concept of education as a cultural phenonmenon and its development towards a system of mass public education within the American experience. In many respects, this area resembles work presently being undertaken in teacher's colleges, but the scope of exposure, experience, and relation to the individual should be carefully considered in the design process.

Research Block

Throughout the program of pre-studies, a major emphasis will be placed on the development of research skills and attitudes. The student will first study descriptive statistics and research methodologies; later computer programming can be added. Techniques of evaluation and their effective use will be stressed. The student should become comfortable with the use of quantifiable information and with the concept of a continuous feedback system through his work in these areas.

Human Relations Training

Group dynamics and sensitivity training programs should be designed to provide the student with opportunities for self-examination, role and function definition and practice, participative leadership tasks, and introspective evaluation of the experiences encountered throughout the program. The intent of this portion of the program is to make the student a fully functioning individual, sensitive to himself and others, within the context of his approaching role as teacher.

Educational Technologies-Methodologies

The emphasis in this area will not be simply the available or potential machines and their use in education, but rather the development of appropriate uses and principles of selection. The concept of man-machines systems in education will be evolved in this area, as will the concomitant philosophical questions of man, technology and the world of the future. The emphasis will be on planning for school programs, but the student should be able to develop general concepts about the uses of science and technology in life.

Human Relations, Growth and Development, and Psychology of Learning

In the previous human relations block, the student was looking essentially at himself; in this area he is studying other individuals--elementary students and their relationships to others. This component will also consider the various learning psychologies and their relevance for the elementary school. This area forms the basic part of the professional preparation from the standpoint of giving the prospective teacher the basis for understanding his functions and purposes as related to children and learning.

Research-Experimentation Block

Having mastered the basic tools of research, evaluation, and measurement, the prospective teacher will be expected to undertake activities of a research and developmental nature so as to become familiar with the processes involved. In so near as possible, these activities should relate to actual (ongoing) school situations and to the kinds of questions appropriate for teacher-level research and evaluation.

School-Community, Institutional Relationships

The school and the community are developing closer working relationships than has been the case in the past American experience. Partly, these relationships improve because of federal sponsorship in areas traditionally thought of as part of the school, but there is growing evidence that many agencies must concern themselves with the welfare of the child if the task is to be undertaken properly. In this component, the student will study these school-community relationships and then will be expected to gain firsthand experiences through working in appropriate capacities in a variety of agencies.

Content Organization and Academic Block

Advanced academic study at this level will be concerned with the student's development of concepts within the areas of specialization. The emphasis will be on the organization of the knowledge component within the teaching-learning experience. The student will develop conceptualizations, structures of knowledge, and techniques of presentation organized to promote an appreciation of the organization of classroom knowledge to promote discovery. At this juncture, the student is learning to use knowledge as a tool, a teaching resource, as well as to accept it as an academic discipline.

Educational Planning (Comprehensive)

Perhaps the single, greatest change wrought by the technological developments of the past twenty years has been the need for extensive and thorough planning. To meet these needs, many techniques and systems of planning have been developed. In this component, the student will approach planning as a tool area and will be concerned with the application of techniques to classroom level planning tasks, the long-range planning tasks in teaching, the development of integrated plans for the school and for sequential programs through the education of a child.

Micro-Teaching

Micro-teaching represents a specialized group of techniques for permitting the student to observe and gain insight about his own attempts at teaching. In this component, the student will plan, present, and evaluate segments of teaching and other aspects of design in the various teacher functions. He will be provided opportunities for close observation and evaluation of his experiences as a pre-preparation to the student teaching block.

Group Interaction Methodologies

Designed as a continuation of the human relations and psychologies components, the student is now asked to learn and experience various aspects of group control and direction. The basic tools in this block will be classroom interaction analyses and the development of alternative teaching strategies and bases for their choice.

Practice Teaching

The practice teaching experience should take place in a public school and under conditions closely resembling those the prospective teacher will encounter on his first job. Prior to this experience, the student has become familiar with the school, with the techniques, and with the skills which form the bases of teaching. He also understands the nature of the learner and knowledge, and their interaction. Now he applies theory. It is a safe prediction that the practicing teacher will encounter difficulties during these initial experiences, and two methods of support are included: (1) An Individual Assistance and Support Program provides professional and technical assistance to the practicing teacher through the resources of the cooperating school , the college, and other requisite agencies; and (2) The Development and Interaction Seminar permits an opportunity for review, analysis, critique, and discussion of progress and pitfalls. This phase, and the preservice program, culminate in an Evaluation Seminar during which the student reviews his program and progress, critiques the institutions's program, and judges his own fitness to enter teaching.

In-Service Training

This model will suggest that a minimum of one years teaching experience be established as a prerequisite to any graduate level training. Practical teaching experience appears to provide insights that cannot be obtained in any other way. Teaching itself produces the type of "student" that will do most to further the quality of the educational profession by providing graduate level insights. It is suggested that graduate degree requirements and sequence of curriculum offerings be defined with the in-service concept in mind.

This model will suggest that the only graduate degree to be offered for elementary teachers by this Teacher's College is a Master's degree in Elementary Education. Entrants to this program would be restricted to graduates of the described preservice program and other elementary teachers who could pass an entrance equivalency test based largely on the material suggested for the professional sequence portion of the preservice program.

The essential thrust of this type of graduate program is to keep talented teachers in the classroom rather than losing them to the fields of administration, guidance, etc. In order to accomplish this goal, the teacher who advances through this progression must be financially rewarded for progress. This requires the support of the school systems and implies that community involvement in the program is required to gain appreciation for its concepts. Some methods encouraging this involvement are specified as a part of the following sections.

To accomplish a meaningful degree in the area of Elementary Teaching, the following general outline for curriculum will be developed as part of the specifications. It should be noted that specific planning for the portion dealing with community involvement must be made by the local college since it is dependent on the characteristics of the community.

Curriculum consists of courses from three areas:

1. Educational
   Advanced Concepts of Cgonitive Development
   Advanced Concepts of Individual Differences and Measurement
   Advanced Concepts of Media
   Advanced Concepts of Motivation
2. Academic
3. Community Involvement

The model will suggest 45 term hours credit be required and that the awarding of the degree require passing an examination after these requirments have been met. The model will specify a minimum of 9 hours in area (1) and a minimum of 18 hours in area (3). It will recommend that content from area (1) and (2) be credited only if taken during the summer months and that no more than 9 hours credit over a school year may be developed in area (3).

Area (1) may be viewed as an expansion and further refinement of the related topics in the preservice program. The program recommended would provide for development of this course content over the three-year period to be experienced before the graduate program will be required. Specifications for this course-work would, therefore, not be defined as a part of the model.

Area (2) must be defined very loosely to give developmental prerogatives to the teacher as a function of interests developed or requirements recognized as a result of the teaching exposure. To encourage prospective teachers in terms of time to graduation, the liberal arts portion of the preservice program is truncated. The in-service program should permit further development in breadth by permitting the accrediting of undergraduate courses in the academic areas toward this Master's degree.

Area (3) will involve a somewhat different approach to community involvement. It is suggested that the college, through the development of participation units, build a relationship with community agencies and services where teachers may offer a contribution. Participation would carry a specific number of credits as determined by the college/agency. Experience should be concentrated in areas that would provide the teacher an opportunity to birdge the gap between school and community. These activities would increase the teacher's awareness of the community's total responsibility for the child and the total program of service to provide for these responsibilities.

The specifications for In-sevice Training will provide a guideline of areas and activities to be examined by the college to implement this portion of the program. The establishment of this type of program will concurrently provide a new spectrum of experience for the teacher and establish better community relations.

IV. Design Procedure

The system model of a comprehensive undergraduate and in-service program for the education of elementary teachers, will contain specifications which can be readily developed into operating programs by a variety of institutions. The primary design procedure to be utilized in this study will be systems analysis.

Systems analysis is concerned with defining and representing the significant relationship within the area of concern. The system analyst first defines the area of operation, analyzes and states the problems, isolates the objectives for which a system is required, and determines from these activities the appropriate information required. Systems analysis highlights the interactions among components of a system and permits system improvements based on a clear recognition of the consequences of alternative choices. The system model developed for the elementary education training program will consciously and explicitly seek to clarify and test all the critical factors of the educational program by viewing the preservice and in-service segments as parts of an integrated effort. The model will consider these factors of educational planning:

- Educational objectives
- Alternative methods for reaching the educational objectives
- Measurement and evaluation of educational effectiveness
- Trade-off analysis to determine optimum mixes of instructional subject matters, models, media, and placement of content in the preservice or in-service segments.

- Advances in educational theory, research, and technology
- Community relations and the changes in the institutions of the schools
- Indirect costs and benefits
- Organizational and administrative considerations
- Faculty, staff characteristics and facilities and equipment
- Proposed budget and program budget analysis
- Methods of implementation

In order to construct a meaningful system model which will be applicable to a variety of potential adaption situations, SDC will perform a systems analysis of the objectives, methods (including knowledge and experience), and educational effectiveness of a typical (but hypothetical) teacher education program, as presently existing. From this basic analysis, changes and additions will be recommended and designed using the model presented in the previous section as a guide.

The design and implementation plan will include the following activity models:

1. An Administrative Model

This model will indicate an organization for the continued assessment and improvement of the educational method and for information collection and processing. Essential parts of the model will be mechanisms for faculty, student, and community involvement and the use of non-college resources.

2. An Instructional Model

Instructional models will indicate the goals and objectives of particular courses or groups or related instructional presentations, along with outlines of the knowledges, experiences, and means for achieving the objectives. Significant aspects of these designs will include an analysis of the relations of individual student needs and aptitudes to the institutional objectives, the integration of mediated and non-mediated learnings and the uses of simulation and other modern techniques, and the advisability of various instructional groupings, including individual work.

Learning modules will be specified within each instructional model. A learning module indicates a relatively closed-loop body of information which can be individually designed and adapted either within the context of an ongoing progmam or as a part of larger design effort. The advantage of the learning module rests in its permitting the closely controlled design of a particular situation. Caution is necessary, however, to insure that the use of this technique does not narrow the range of potential experiences for students.

3. An Implementation Plan

A suggested implementation plan will be developed to indicate not only the relative schedule of events, but also to indicate the degree of disruption in the present program of an institution considering adpation. Suggested requirements for authorizations, staff, equipment, services, facilities, and funding levels will be included.

A Management Development Plan

The general plan for the management of contract activities is represented as follows: The project will evolve around several major, logical, analytical steps:

- Analysis of the present situation
- Analysis of needs
- Statement of aims and goals
- General design (functional analysis of teaching)
- Statement of training needs based on function
- Division of Assessment and Program improvement

Program planning will be undertaken in terms of necessary and available personnel, the use of media, appropriate and possible experiences (both actual and simulated), the availability of guidance from research and the program content. These five major areas will provide design guidance within a context of feedback and management.

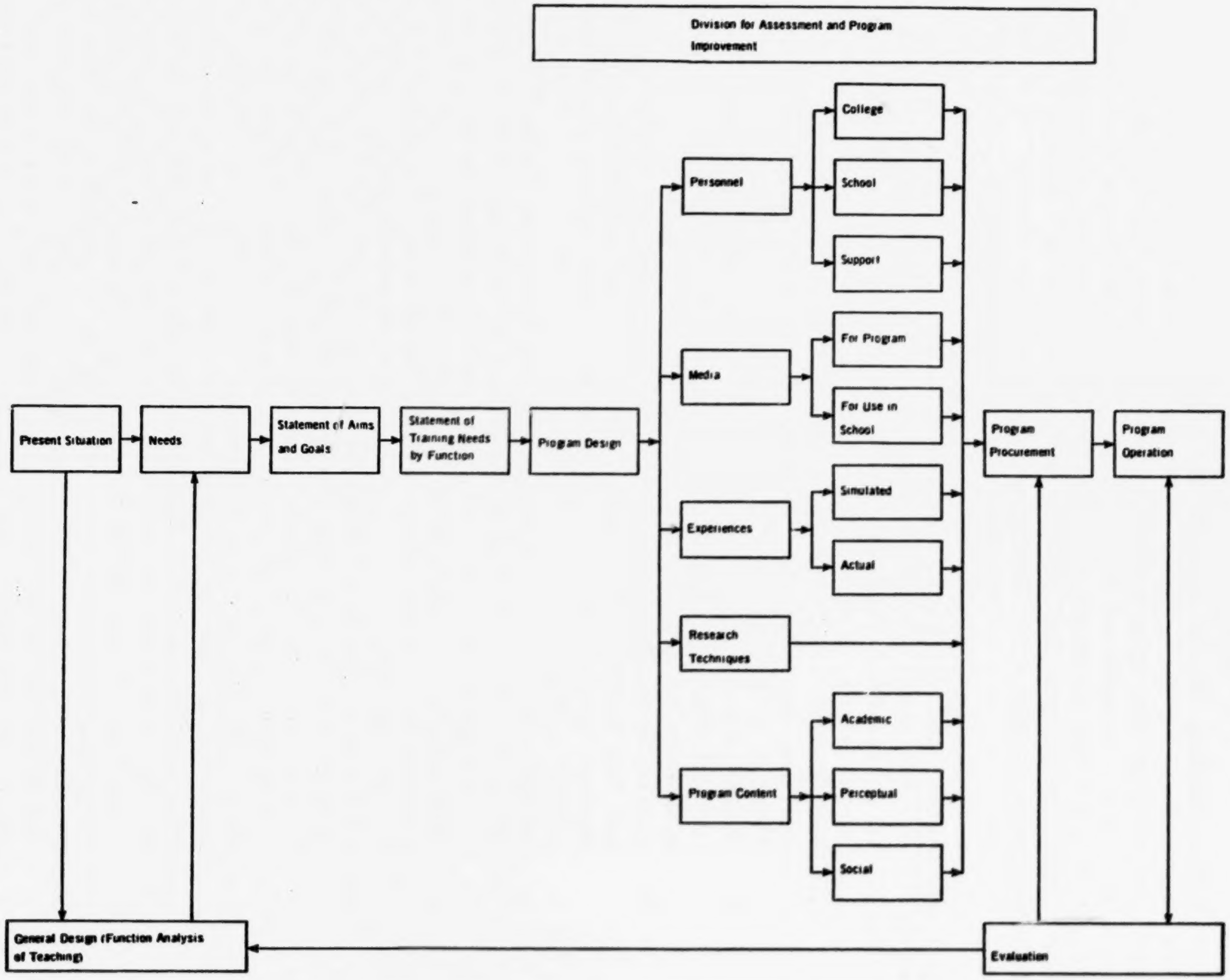
V. System Implementation Model

The design concepts presented in the preceding sections imply potentially radical changes for institutions presently involved in teacher education. Integrating these changes into an ongoing program will be particularly difficult; therefore, it is recommended that a special implementation design be developed to provide maximum benefit from the proposed analysis. This section describes a suggested implementation procedure based on the utilization of maximum resources, the effective design of interaction with the present teacher education program, and the greatest freedom for planning within the institution. The model utilizes a system feedback mechanism as a "continuing program modification element" to assure that the experiences of program graduates are looped back into the college program. The agency established to coordinate this feedback is identified as the Division for Assessment and Program Improvement.

A. The Division for Assessment and Program Improvement

The implementation model suggests the establishment of a special planning and operating division possessing independent authority under the leadership of the institution utilizing the teacher education model developed through this proposal. This Division for Assessment and Program Improvement (DAPI) will function to some extent in the manner of departments of institutional research, except that it should have its own funding level, control of student experiences (as appropriate), and control mechanisms. The initial function of DAPI will be a generative one, but as

TEACHER EDUCATION PROGRAM – A MANAGEMENT DEVELOPMENT PLAN


Division for Assessment and Program Improvement
Present Situation
Needs
Statement of Aims and Goals
Statement of Training Needs by Function
Program Design
Personnel
Media
Experiences
Research Techniques
Program Content
College
School
Support
For Program
For Use in School
Simulated
Actual
Academic
Perceptual
Social
Program Procurement
Program Operation
General Design (Function Analysis of Teaching)
Evaluation

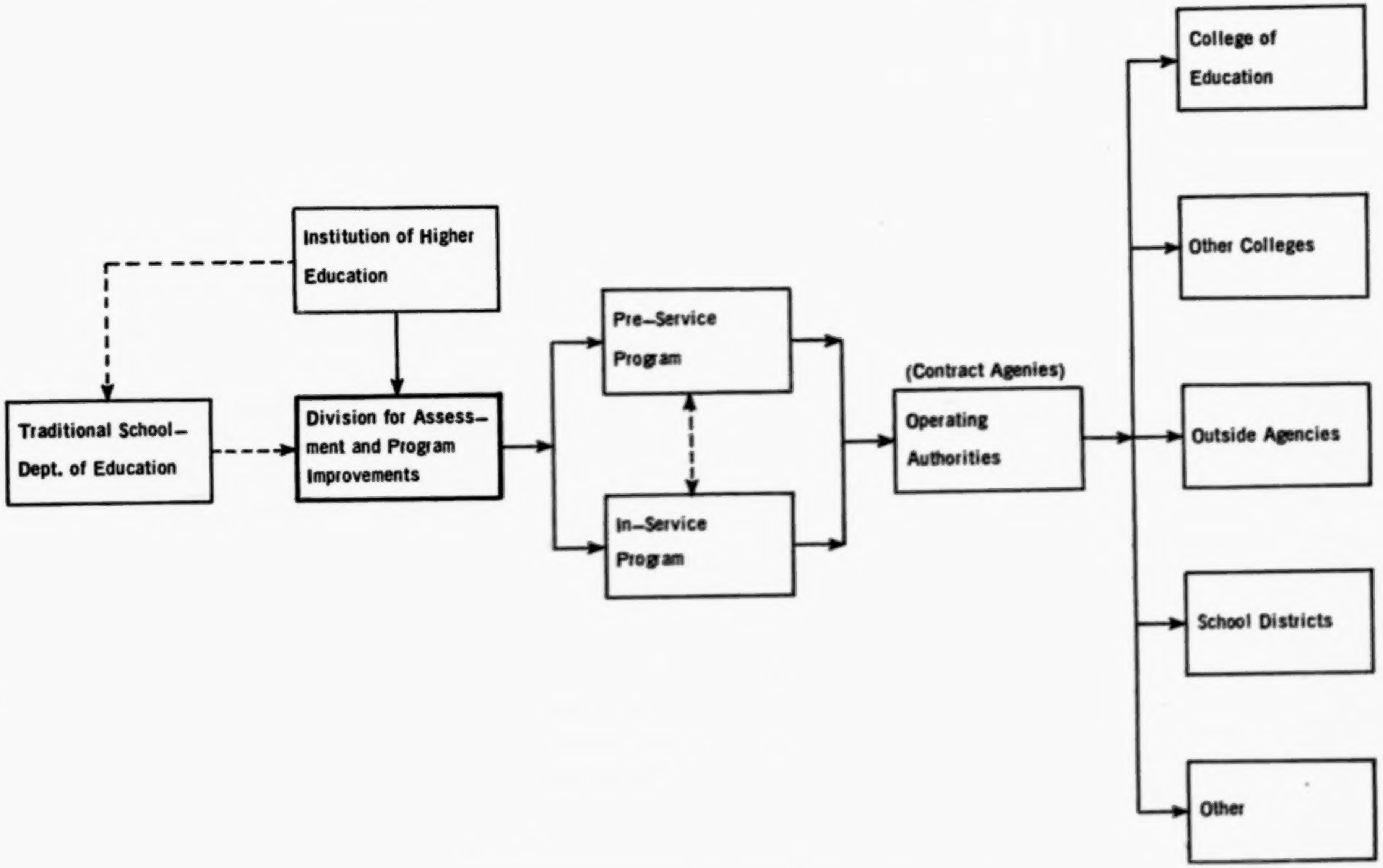
the program progresses, the function will provide the feedback loop to insure that the program has the necessary insight built in it to insure that the program is meeting its goals.

The following figure relates the DAPI to the institution and indicates its relation to the Department of Education. An important aspect of this planning will be the freedom for DAPI to contract with appropriate agencies both inside and outside of the institution for services, courses, design segments and other features of planning and operation. DAPI will coordinate the preservice program and the in-service program by relating both to local school districts and other concerned agencies.

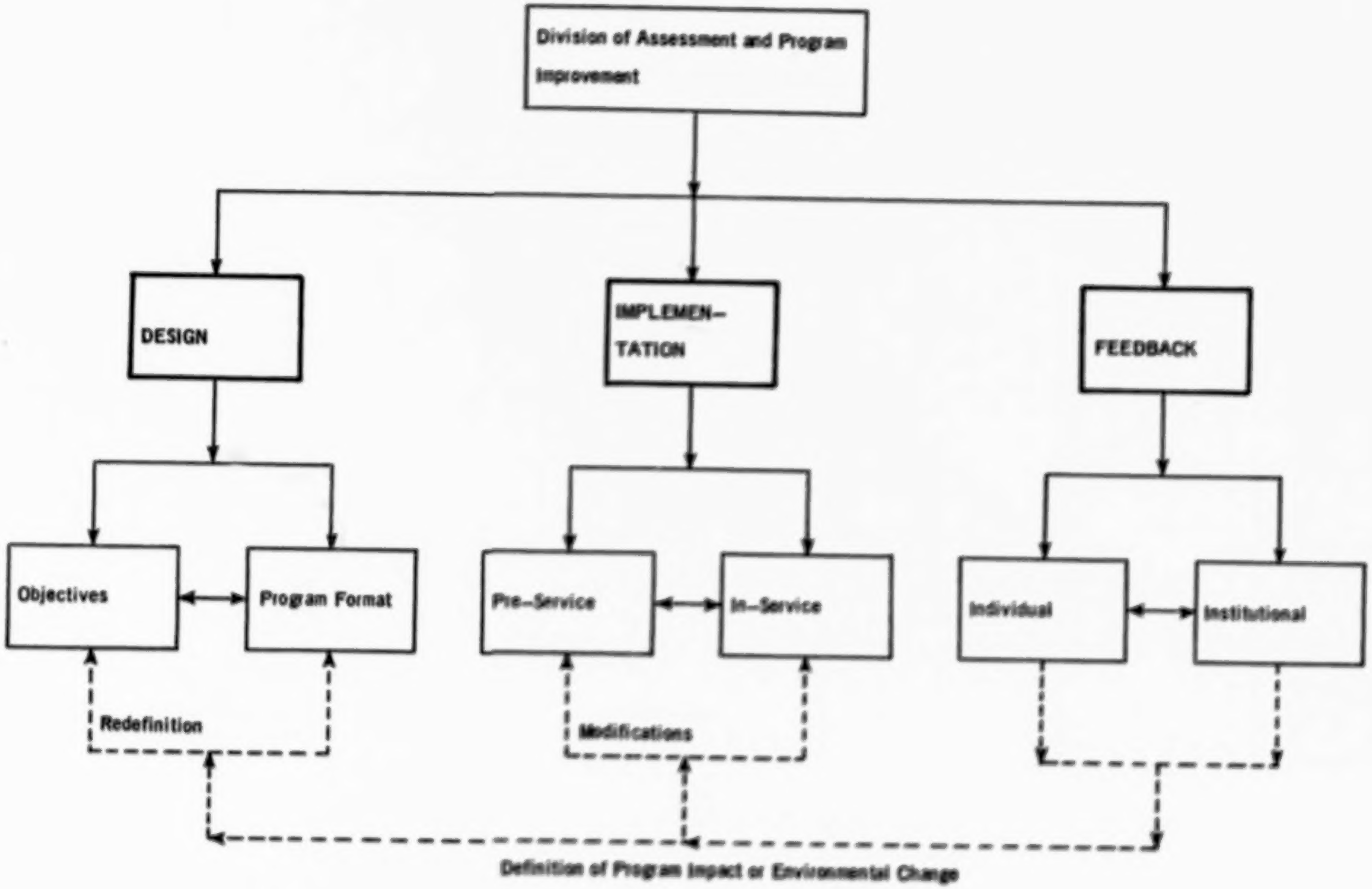
The next figure describes the functions of DAPI as those of design, implementation, and feedback. Included within these terms is the responsibility for the total process of program management. Within this context, it is anticipated that DAPI will perform the following tasks:

1. Set minimum standards for prospective teacher entrance into the program, including the evaluation of previous work and the prediction of success.
2. Define and develop (or contract) the total educational program and control these phases of management. (Operation may be assigned elsewhere at a later date.)
3. Develop quantifiable measurements in order to relate the college and the individual goals to the specified curriculum and to measure the ability of the program to meet these statements of goals.
4. Develop information systems and the tools for procuring and organizing the requisite information for program operation, evaluation, change, and control. Especially necessary are tools for measurements of behavioral and attitudinal assessment of each prospective teacher that will be administered at critical points in the program.
5. Organize a system of information, or profile, on each student to reflect a record of his activity throughout the preservice and in-service period. This profile should predict potential areas of difficulty and problems for the individual so that remedial action can be taken as necessary. (Note: This information is intended for use in evaluation of the individual and in adjustment of the program. It is not intended that this information should in any way be used to affect teacher selection and/or retention, except as it may be so desired by the individual program.)
6. Develop a feedback mechanism from the individual profiles for use in adjusting and improving programs and curricula.
7. Assist in the design and coordination of the student teaching experiences.
8. Develop measures of institutional efficiency and success in terms of meeting its goals in a cost-effective and otherwise appropriate manner.
9. Relate the empirical results of the teaching experience to the

SYSTEM IMPLEMENTATION MODEL PROGRAM MANAGEMENT


Institution of Higher Education
Traditional School– Dept. of Education
Division for Assess– ment and Program Improvements
Pre–Service Program
In–Service Program
(Contract Agenies)
Operating Authorities
College of Education
Other Colleges
Outside Agencies
School Districts
Other

SYSTEM IMPLEMENTATION MODEL FUNCTIONS OF DAPI


Division of Assessment and Program Improvement
DESIGN
IMPLEMEN-TATION
FEEDBACK
Objectives
Program Format
Pre-Service
In-Service
Individual
Institutional
Redefinition
Modifications
Definition of Program Impact or Environmental Change

behavioral changes reflected in the dossier to improve the kinds and qualities of experiences provided within the program.

10. Develop in-service programs for the college faculty and coordinate the activities of contractors so as to provide a constant means of upgrading and staff improvement.

B. Implementation

The proposed professional content supported by the required instructional material will require a reorientation of "areas" of educational specialty. In-service training for the instructional staff will begin prior to the implementation of the program. The specifications for the program should be reviewed and modified to meet local needs for two to three months prior to implementation. This should be accomplished in workshop sessions prior to the actual program implementation. These sessions should involve the entire Teacher Education College Staff concerned with Elementary Education. These workshops will be led by DATI personnel.

The teaching methods employed by the faculty as the programs get under way will initially rely heavily on team teaching techniques, gaming, modeling, and simulations. A basic concept of the organization of the program is to attempt to pinpoint the effectiveness of these techniques by acquiring sufficient empirical data as the students progress through the program.

In-service training for the Teacher's College staff will be partially coincident with that of the elementary teachers. Participation in the Community Involvement Program will serve to provide a means for assessing the realism of the program and will add dimension to educational insights. In-service training should also include participation in courses in other disciplines, that relate to the structuring of learning being provided in the College of Education. This includes advanced courses in Sociology, Psychology, Statistics, etc. In-service training should also provide sabbatic years to permit scheduled re-exposure to actual elementary teaching.

C. Facilities

The proposed content will create some increase in demands for facilities and equipment. Generally, however, these facilities would be required if any upgrading of the in-service portion of teacher education is to be accomplished. Classroom/lecture spaces will remain constant. Some increase in laboratory space will be required to accommodate games, models, and simulations to be utilized in the developmental program in the human learning processes. Instructional media should include: TV receivers, video tape recorders, film materials, language laboratory, programmed instruction work books, teaching machines, and equipment for computer-assisted instruction. As the analytic model is developed, detailed specifications for the program design, procurement, and operation segments of; the model will define specific facilities required for component training and for the overall program.

Temple University

Introduction: A Reason To Change

The truism that a good teacher is someone who is able to help children learn **well** has always been clear enough. The problem has been that the way to become and be a good teacher is very complicated. Over the years lots of ways have been suggested and tried. When we believed in the primacy of subject-matter, we concentrated on teaching teachers to be scholars. When we believed in the whole child, we concentrated on the study of children. Remarkably, we have made more than a little progress while we have seemed to be dashing off in opposite directions.

The fact is that these are not really different directions; they are only the different aspects of the same tough, complicated concept. There are so many combinations of knowledge, qualities, character and skills that make good teachers that no single quality, character, skill or body of knowledge is ever enough. It's the meld that is crucial.

Lately we have been most concerned about improving the teaching in the schools where the children of the urban poor attend. And we have learned a lot about what is good and bad in teaching from all this recent experience. We have learned, especially, that a sensitive response to children is basic even though we knew it long ago. We have learned that teachers have to know the subject matter they are teaching; and that, too, we have known for quite awhile. We have learned that teachers ought to understand the community environment and the home as these influence children and their capacities or impediments in learning. We have always suspected that these influences were profound. We have learned, therefore, that children are not all the same and need, as a consequence, to be taught somewhat differently. This we have always believed; no cliche is more respected than "individual difference." We have learned that teachers need not just a method, but a repertoire of instructional strategies and tactics, and experience in their applications. That insight appears in many books, even some rather old ones.

It would appear that we have really been a long time learning two newer new things. One of the newer new things is that what really counts most is how teachers act, how they "behave" as teachers, not what they say or even what they know. The other newer new thing is that good teaching is much more likely to be a function of the work of a number of closely associated "specialists" then it is in just the interaction between one teacher and a group of children.

Teaching as the function of a team of specialists and an operational (behavioral) understanding of teaching performance are the two basic newer ideas on which this prospectus of a model of teacher education is built. If these ideas have merit, they permit a sensible response by teacher education institutions to the whole range of teacher education needs. A concentration on behavior and a burgeoning technology virtually demand a program of individualized instruction for student teachers. A program so flexible that education for specific kinds of schools and particular populations of learners can now be devised and offered within the content of the total teacher preparation program, for both pre-service and in-service.

The old truisms about teaching must be retained, of course. But a teacher education program changed by these two powerful ideas allows us to construct educational experiences for student teachers so that they can be variously prepared to teach anything well, anywhere. This goal is the reason for change.

II. Some New Realities in Teacher Education

There are some new realities to which new teacher education programs should respond:

1. Growing expertise in theory and technology is facilitating the development of educational programs powerful enough to develop specific exemplary teacher behavior.
2. Operational definitions of role behaviors are fusing theory and practice.
3. It is increasingly clear that the teaching function is more complex than a teacher alone can perform. Specialists in educational applications (i.e., educational technologists, material specialists, etc., instructional clerks and other paraprofessionals) have skills necessary to good teaching. It is thus, becoming clear that the teacher must also be able to perform as the leader of an instructional team.
4. New patterns of teacher development and deployment, as well as new strategies of instruction, are being invented and diffused. New curricula, many depending upon new modes of teaching strategy, are being developed in ever-increasing numbers.
5. In response to demands from parents and communities generally, habits of isolation of schools and teachers are breaking down. New collaborations between schools and community are emerging.
6. Among the new strategies of instruction, individualized instruction appears to offer the greatest promise.
7. The encapsulation of teacher education institutions is beginning to give way to cooperation with school systems, community agencies, educational businesses - even liberal arts colleges.
8. Early and continuous involvement in the field, not only in schools but in community agencies and with parents, proves to be beneficial to student teachers.
9. Development of self-insight and clarification of personal values - "Who am I?" and "What do I believe?" - are major qualifications for good teachers. Sensitivity training, human relations and value clarification training are necessary ingredients in teacher education programs.
10. Knowledge of the subject matter is indispensable to teachers.
11. The new demands upon teachers necessitate knowledge of research method: evaluation, feedback processes, testing, etc.
12. A science of teaching is emerging based on a repertoire of teaching behavior.

13. Naturalistic studies of teaching behavior and pupil product measures are growing in number, quality and insight.
14. In the work of Gagne and Ausubel, especially new syntheses of research into systems and strategies of teaching are beginning to emerge.
15. ERIC is bringing brsearch in education closer to practioners in teacher education and research is beginning to have profound effects upon practice.

III. A Rationale For A New Model Of Elementary Teacher Education

These new realities, and the scores of new educational designs which have recently been invented and tried, could be grafted upon the traditional course structure of teacher education programs; a little team teaching here, some inquire method there and new elementary school curricula everywhere. It would appear obvious, however, that traditional course structure is simply not strong enough to bear the weight of change. Too much of the meaning of new educational ideas is lost if the colleges persist in telling their students to do as they are told rather than doing what their professors are doing.

There can be no doubt that structure and content are closely related. A new curriculum design and a new methodology which suits it are required. The model here proposed is a curriculum design embodied in a new instructional structure.

Three principles of curriculum design are primary to building the new model:

1. Specification of the basic concepts determining the selection and sequence of content; utilization of these concepts in building the curriculum structure.
2. Inventory of the strategies and tactics of instruction as well as the new teaching function roles, materials and media.
3. Provision for response to the individual differences in learning and learners.*

IV. Specifications For The New Model

Producing the new model for teacher education has six essential process tasks. The model will:

1. Identify and state the basic concepts of the teaching function which define teaching behavior in a variety of dynamic and varied conditions.
2. Identify and describe the various professional and non-professional roles and the corresponding instructional role behavior required to perform the teaching function.
3. Describe the use of a system of individualized instruction to plan and operate a program to educate people to perform these various roles.

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*Harold Howe has said, "At a time when the public schools are realizing the importance of individual differences and are adopting individualized instruction, independent study, flexible scheduling, team teaching, non-graded classes, and similar practices most colleges and universities still subscribe to a uniform four-year, 125 unit system.

   - A. by defining the behaviors which the learner must exhibit to demonstrate mastery of the concepts
   - B. by ordering these concepts and their behavioral definition into a series of behavioral objectives and performance levels which will serve as a structured plan for learning the stated roles
   - C. by specifying a series of instructional modules designed to teach each behavioral objective
   - D. by organizing these modules into interrelated groups to form a model program of instructional experiences
   - E. by showing how the services and settings of numerous community and school system operations - agencies and operations that influence what children learn - can be used in the instructional program.

4. Identify and describe roles of college faculty and others who will be involved in the teacher education program.
5. Provide procedures for evaluating the effectivensss of the curriculum plan and its instructional design so that it may be self-renewing, especially an existing and new research and technology help to develop instructional strategies and practice.
6. Identify and describe the training agencies which will prepare, in cooperation with the teacher education institution, other specialists - professional and non-professional - for their roles in the teaching function.
7. Display a management system for administering the instructional program. (An individualized modular program poses administrative problems quite unlike those with which college administrators now contend. Undoubtedly, a computer-assisted management system will be necessary to cope with the variables of students, faculty, space, loci of instruction, groupings and the other program components.)

The Scope of the Model

One of the more difficult change problems posed by USOE's request for proposals to restructure elementary teacher education program is how to cope with the liberal arts component of the program. In most teacher education institutions the majority of credits is in the liberal arts; in some it is over three-fourths. In graduate programs - MAT or the like - it is common for students to come into professional education from an undergraduate program wholly in the liberal arts. Obviously, a total restructuring of elementary teacher education programs must involve the liberal arts college (or departments).

The problem is a political one. No university, college or school of education has the necessary "clout" to mandate changes in either the content or process of liberal arts courses. Few universities have even a structure through which such changes to suit education students could be made. The situation may be somewhat different in state colleges where the major business is still teacher education, but conflict is surely predictable in these institutions if radical demands were to be made upon the liberal arts faculty.

It does appear to be undeniably true, therefore, that an elementary teacher education model which required changes in the liberal arts components would be infeasible now, no matter how desirable. For this reason the model for which this is the prospectus will not include liberal arts component in teacher education. But it does seem possible that in experimental applications a substantial number of liberal arts professors could be persuaded to cooperate. This is as far as a sense of reality will allow us to venture now.

V. Specifications For The Behavior Module

The key to the efficacy of the new teacher education model is the behavior (instructional) module. The name of this unit of instruction is different and novel. The idea is different from "teaching unit" and its novelty is intended to imply an analogy with the term as it is commonly used in architecture. The purpose of a behavior module is to teach a specific and stated teaching behavior. Organized into series and patterns, they become the interrelated parts which make up a total program of instruction. Though the language runs the risk of sounding like "molecular," which is ordinarily a pejorative term in education, it should be clear that the equation is not intended. Indeed, the emphasis here is heavily upon programming the modules into coherent constructions.

A behavior module consists of a number of planned and related learning experiences. Written materials, technological applications, lecture and discussion, observation, and field practice, some or all, furnish the methodology of a module. In each module, however, evaluation based on a measure of "ability to exhibit target behavior" is applied, and the student is expected to "master" the skill behavior. The model teacher education program may have upwards of 400 separate, interrelated modules of instruction clustered around specific behavior patterns derived from the concepts of the teaching function.

Content and Affective Components

It should be explicitly clear that a module of instruction is at once self-contained, in the sense that it has its own independent rationale and objective(s). It is also related to other modules in a series, which in turn have a rationale and objectives(s). In one perception, the module is process component in the college's instructional program. But in another perception, each module is a microcasm of a program. As such, it has a content component, an affective component and a methodological component, i.e. what is being taught through the means of the module is not just a way to teach, but a way of teaching someone how to teach something.

It must also be clear that a module alone is of indifferent worth. No one module, by itself, has enough meaning - except in a very restricted condition - to make a difference. When modules are related to each other in a programmatic structure, allowing for sequencing and for conducing toward some Gestalt of concept and method, then they form a whole. It is this construction into a number of Gestalts that fuses content, affect and methods exemplified in measurable behaviors.

Gagne's Definition

Gagne's definition of the functions of the instructional situation might best serve as a "model" of a behavior module. Gagne divides the instructional tasks into eight distinct kinds of activities. Each module would contain the appropriate activities and materials to support these eight different functions. They are as follows:

1. presenting the stimulus
2. directing attention and other learning activities
3. providing a model for terminal performance
4. furnishing external prompts
5. guiding the direction of thinking
6. inducing transfer of knowledge
7. assessing learning attainments
8. providing feedback

Individualized Instruction

Building such a modular structure requires ultimately that the usual structure of courses be abandoned in favor of a plan of individualized instruction.* The modular organization contrasts with courses in that the modular organization will feature the following characteristics of programming:

1. Self-pacing: Students enter and move through a given module at at their own speed until they exhibit the specified behaviors.
2. Independent study: Materials are created which students can use independently; i.e. programmed materials and media devices usable in individual carrels in a learning center or instructional materials center.
3. Learning styles: A variety of materials and activities are available, recognizing that trainees have different learning styles. Emphasis is upon success in exhibiting behavioral objectives rather than mastering any specific materials.
4. Grouping patterns: Students participate in large groups, small groups, tutorials, and independent study at various times within a given module depending upon the instructional function and objective.
5. Physical location: Activities occur at stations - a ghetto school, pediatric hospital, school administration building - wherever is most appropriate for the module's objectives.
6. Accessibility: Materials and facilities will be at stations at a wide range of times; i.e. 6:00 a.m. to 11:00 p.m.
7. Staff utilization: Faculty is responsible for supervising given modules. In addition, semi-professional staff members and student assistants will be utilized for certain routine operations.
8. Integration of theory and practice: Students are required to exhibit not only behavioral outcomes, but an understanding of their theoretical and operational facility, limitations, and applications in problem situations.

9. Field activities: Students participate in some field activities during the course of each module. These may range from assignments in an educational psychology clinic, to tutoring in the community, to student teaching.
10. Emphasis upon mastery: Students are required to remain in a module, if necessary being reassigned, until they have mastered the terminal objectives.
11. Individual evaluation: Diagnosis and support of individuals is emphasized rather than the traditional rating. The objective is to exhibit the behavioral objectives at a satisfactory level. Evaluations of individual performance are made at various stages through out the module. Time for the completion of a degree program is variable.
12. Unlimited achievement: Students are encouraged to go substantially beyond minimums within modules, in honor or specialized modules, or in a series of special modules.
13. Generalized applicability: Modules are appropriate for different levels of teacher training including preservice, in-service, and lay training variations, as the need for training in given behavioral objectives would determine.
14. Transportability: Instructional materials are constructed so that they can be transported and reproduce their effect in another setting.
15. Module evaluation: Pre- and post-tests are used to study continuously the effect of the modular training upon learners. Individual modules would be continually engineered until they achieve a specified level of reliability in assisting students to modify behavior.

The module thus becomes the basic instructional unit in the new model of education for the elementary school teacher. Such a module has been foreshadowed by the work of the R & D Center for Learning Research and Development at the University of Pittsburgh in their work on Individually Prescribed Instruction, by the work of the Southwest Regional Educational Laboratory with their educational products and packages, and by other research and development agencies across the country. Those who construct the modules will draw heavily upon the work that has been and is being done.

A plan for the construction of a specific behavior module would include at least three kinds of information: (1) an instructional plan, (2) content, and (3) supporting materials. The following outline suggests the format that a module might take*:

* We are defining individualized instruction to mean an instructional approach using behavioral objectives (and related diagnostic instruments); a variety of materials and equipment, groupings, methodologies and instructional time (including pacing and flexible scheduling). The purpose is to differentiate instruction from student to student.

*It should be specifically understood that this is a hypothetical formulation and is likely to be modified upon application.

1. Behavioral objectives: Precise statements of the target behavior, of minimum standards of performance, and of the conditions for measuring achievement.
2. Location: Specifications for the place where module activities will occur.
3. Work assignments: Specifications for work assignments needed to provide complementary experience for students.
4. Entry prediction: Estimate of previous experience and knowledge as a basis for further learning.
5. Estimated time required: Prediction of time required by students to complete module.
6. Specifications of faculty and other personnel requirements.
7. Instructional tasks which are supported by content description and resource materials:
   a. Assessment of entry competence.
   b. Stimulus presentation to generate interest.
   c. Presentation of teaching behaviors to be emulated.
   d. Conceptual frame; theoretical substantiation and related literature.
   e. Assessment of cognitive understanding.
   f. Laboratory practice: opportunity to practice behavior in controlled situation.
   g. Test for minimum laboratory behavior.
   h. Opportunity for field practice and feedback.
   i. Assessment of field behavior and cognitive understanding.
   j. Assessment of module by students.

Behavior Modules As Sub- Systems

Behavior modules are the elements of the model teacher education program. As such, they are sub-systems of the larger system and are related in a coherent integrated whole designed to teach students to behave as professional teachers. Individual students would be programmed through the total program of modules. One of the major tasks of building the model will be to arrange the behavior modules so as to create an evolving series of patterns of behaviors which exemplify effective teaching.

There are several important principles which serve as guides for programming behavior modules:

1. Logical, which refers to the cognitive structure of content which moves from elemental data bits to concepts and thence to more powerful concepts.
2. Skill complexity, which organizes from simple to complex skills.
3. Psychological, which recognizes interest readiness and other affective qualities as well as the conditions of learning as a guide to organization.
4. Socialization, which hypothesizes that there is an orderly acquisition of values and attitudes as a predictable process of professionalization.

Work experience and/or internships are scheduled concurrently with the subject and activity flow of the module. That is, when the student is participating in a sub-series of modules dealing with human growth and development, the student would be assigned to work, for example, in a Head Start Program, a nursery school, etc. A student who is moving through a series of modules related to reading instruction might be assigned to a reading teacher as an assistant, in tutoring, testing, or diagnosing. Care is taken to insure a supporting situation which allows reasonable freedom for the student to try out the target behaviors of the modules in which he is participating.

Below is an example of how a series of modules might relate to form a program series. In this case, student teachers are being taught, ultimately, how to construct and evaluate tests items for their pupils, test items geared to pupil behaviors. In practice such a series would have been preceded by modules related to child development, reading skills, etc., and would be followed, of course, by other module series.

Such modular programming may, at first, be a priori, being based on theory and experience. However, trial runs and field testing will provide empirical data for formulating program variables.

This is an example of modular programming of cognitive qualities and skill complexity. Modules C and E unite previously learned behaviors. Please note the conceptual base line.

These few modules are an abstracted segment of a program of modules designed to produce complex teaching behaviors. Students would be participating concurrently in a work internship; i.e. as an assistant to media specialist or in a traditional student teaching situation.

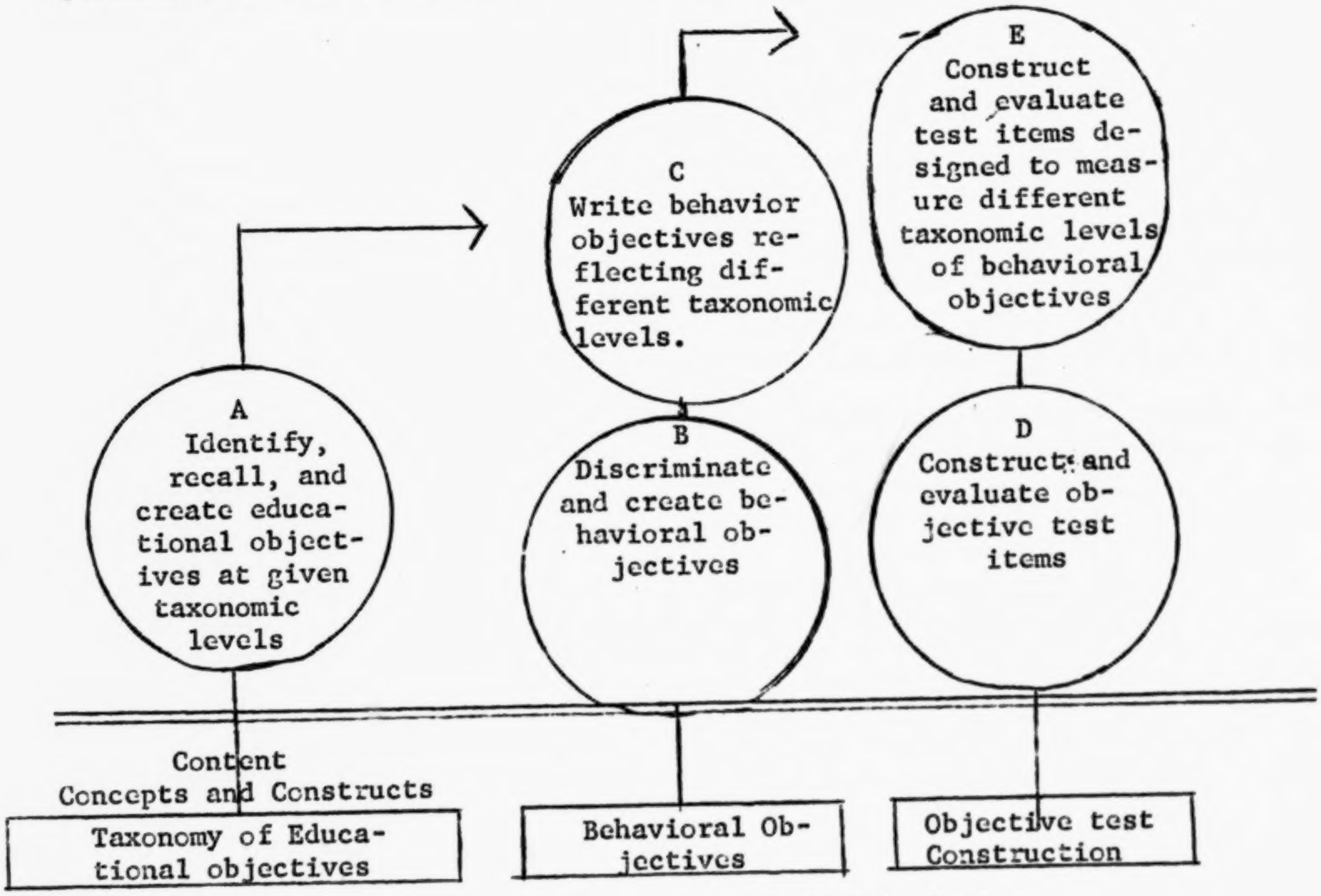

E
Construct and evaluate test items designed to measure different taxonomic levels of behavioral objectives
C
Write behavior objectives reflecting different taxonomic levels.
A
Identify, recall, and create educational objectives at given taxonomic levels
B
Discriminate and create behavioral objectives
D
Constructs and evaluate objective test items
Content
Concepts and Constructs
Taxonomy of Educational objectives
Behavioral Objectives
Objective test Construction

FIGURE 1. A Schematic of a Single Module Series

In-service Application

One important virtue of a flexible and individualized modular system is that it makes in-service instruction applications feasible. We forsee two general applications of modular programming for in-service education:

1. It permits the development of a number of "packages" of instructional modules which are transportable, which deal with certain "universal" instruction skills, and require no (or little) on site faculty.
2. The development of a number of specific instructional modules (or series of modules) to suit the specific identified needs of schoool system or of an interest group of instructional personnel can become routine. Such modules (or series of modules) could, of course, range from such specific skill instructions as identifying errors in the use of the comparative and superlative forms of adjectives" to "how to teach BSCS chemistry."

Graduate Study

It is fully intended that graduate study as well as undergraduate should be reorganized by the model to be constructed.

Humanization

An unfortunate bias - one probably not wholly unfounded - militates against even the appearance of a "system" as it may be applied to human beings. "System: apparently connotes automation and mechanization. Thus, as any program begins to take on the appearance of being systematized, even managed in part with computer-processed data, it is often charged with being dehumanized. The concern is important and real.

But it is precisely because dehumanization, in its deepest sense, is so much a problem in current teacher education programs that the modular program is so attrative in its potential. The modular program "humanizes" in these specific ways:

1. The student's program is individualized.
2. Faculty support - instructional and advisory - is omnipresent.
3. The sine qua non of achievement is the behavior of individual learners, individually exemplified in a variety of conditions.
4. Each series of modules contains content, affect and method components directed at human learning and human behavior.
5. Field experience, so greatly expanded in the modular program, is a real-time, real-world, real-people experience.

VI. Other Design Elements Of The Modular Program

The behavior module teacher education model is a radical departure which has radical implications for the development of resources necessary to initiate, maintain and renew the program . New patterns of resource development are especially important for student personnel functions, faculty deployment, administrative organization and management strategies, physical plant and equipment.

A. Student Personnel

An individualized program requires the development of a strong student personnel service. Students must have a home base, other persons through whom they can relate to the system. Such a student personnel service should have the following characteristics and charges:

1. Monitoring individual progress: Students' progress through the system will be recorded and evaluated by the student personnel staff.
2. Personal counseling: Students will be counseled both in individual and group sessions concerning personal, social, vocational and emotional problems traditionally associated with collegiate student personnel services.
3. Consideration of relevancy: Activities will focus upon helping students to achieve their learnings and to relate them to their life patterns of behavior.
4. Learning styles: Students will be helped to identify and develop their personal learning styles.
5. Individualized programs: Students will be guided in formulating their own learning program, for opportunity to select a variety of tracks and module series will be great.
6. Internship administration: Work assignments and assessments will be coordinated by the student personnel staff.
7. Focus for activities: Students will be encouraged to form groups as a means of effecting social and individual actions. Small budgets should be available for student-planned projects such as trips, community service activities, interest courses, etc.

B. Faculty Deployment

Modular programming dictates a radical change in faculty deployment. Faculty will have two distinct roles: (1) the development and supervision of the modular curriculum, and (2) participating in the student personnel center by guiding groups of students through the instructional modules. This dual role will serve to unite the system. Faculty will be concerned with theoretical, cognitive, and research aspects of individualized instructional units, but will also be concerned with humanizing, integrating, and developing the total system as it relates to students. Hopefully, this pattern of faculty deployment will contribute to an organizational structure which strives for professional excellence and is sensitive to the qualities of individual students.

Deployment patterns will differ in three other major ways:

1. Faculty will be the leaders of curriculum development teams and instructional teams. These teams will involve faculty, school system staff, educational technology and materials specialists, clerks and students.
2. System maintenance will require continuous education of all those who participate in the program.
3. The key role of measurement and evaluation will require allocation of staff for these purposes, who will function in part as objective monitors for the program.

C. Administrative Organization

A new management system appropriate to the greater complexity of the administrative decisioning required by the new model will surely change some traditional forms of college organization. Departments and their traditional prerequisites will change. Administrative functions will be more diversified and it is likely that more decisions will be made at the instructional level. Budgeting decisions will likewise be decentralized, in part. The student personnel center will emerge as a more powerful agency because of the obvious need to maintain a healthy tension between task and human concerns. And, perhaps most significant of all, the colleges will enter into truly cooperative relationships with school systems, community agencies and groups, educational businesses, regional laboratories and other institutions who care about education.

The development of the administrative structure will be an integral part of the model design. However, its detail, as is always the case with administrative structure, will follow upon implementation planning.

D. Physical Plant and Equipment

Modular programming has dramatic implications for physical plant facilities and equipment. Self-pacing, individualized materials, field experience and the workshop atmosphere call for new facilities and new equipment. As a part of the modular program model to be developed, some educational building specifications and hardware specifications will be formulated. The specifications may take the following directions:

1. Physical Plant
   a. Increase in number of carrels
   b. Decrease in number of classrooms
   c. Specialized rooms in field location
   d. Workshop rooms
   e. Decentralized libraries and reference areas
   f. Staff offices contiguous with instructional areas
   g. Laboratories for student activities including TV studio, child development study center, etc.
   h. Open access for public to bring children in for special laboratory activities.
   i. Accessibility to media and media devices
   j. Media-viewing facilities for individuals and small groups.

2. Equipment
   a. Great range of self-instructional devices extending from computer terminals to inexpensive teaching machines.
   b. Availability of media production equipment
   c. TV equipment for field use
   d. Copying equipment available to students.

These specifications for plant and facilities will be developed as an ancillary sequence of the model in the expectation that final model implementation will require consideration of these resources.

E. Mechanisms for Change

One future development can be predicted with assurance. Elementary school teaching will change. Educational research, changing instructional strategies and staff deployment, new subject matter and the whimsy of educational fads will call for a teacher prepared to cope with accelerated change. As a corollary, a model program for elementary teacher education must provide for change implementation. There must be a feasible mechanism for changing the model in response to valid educational developments. Self-renewal, systematic and rational change, is entirely feasible in modular programming because of the following factors:

1. Small increments: Because the modular program consists of a series of small increments, changes can be evolved step-by-step. Individual modules can be introduced without major system redesign.
2. Low risk: Because of the small increment there is little risk in making a change. Major directional changes such as the development of advanced specialists in science teaching or group sensitivity training can be introduced gradually. Implementation can proceed module-by-module for a limited number of students until the validity of a new direction is substantiated.
3. Specialized programming: Because students follow individualized programs, the system does not need to commit itself to any one major change. For example, the demand of area schools for teachers to use Individual Prescribed Instruction materials can be responded to by programming a limited number of behavioral modules while still maintaining other programs.
4. Instructional validation: Because module outcomes are specified in measurable behaviors, their effectiveness is amenable to research evaluation. Module pre- and post - tests of student behavior will give clear evidence of the modules' instructional validity. Instructional validation can be further studied by researching the performance of individual students in succeeding modules of the program.

These elements of modular programming should facilitate the ease and rationale control of programatic change in response to professional priorities. The model design will include specific mechanisms that will support and facilitate this change process. These mechanisms will include the following structures and policies:

1. Decision power: An organization procedure will be specified that will be responsible to the total professional staff within the college and also to the schools and other organizations who hire teachers.
2. Decision procedure: A procedure will be described for introducing and eliminating modules. Final acceptance will come from a regorous evaluation of the data regarding the instructional validity of the proposed module.
3. Evaluation: A major investment should be made in developing a research team which will continually evaluate proposed new modules and re-evaluate current modules.
4. Criteria for decisions: Levels and kinds of validating criteria should be publicly specified. These criteria would thus provide for open professional debate. Professional educational research theory and technology will be changing, too.

5. Central data collection: A major investment will have to be made in the collection of student performance data and data related to the instructional validity of given modules. These data will be analyzed for patterns of student learning and instructional effectiveness. Ultimately, norms should emerge that will be necessary for student guidance and for program evaluation and design.

F. Dissemination and Diffusion

Many well-crafted educational ideas, though thoughtfully designed, well-constructed and launched with vigor, remain unimplemented. The teacher education model will include suggested strategies and tactics for its dissemination and diffusion. Modular programming seems to offer several attractive qualities:

1. Transportability: Module materials and procedures can be designed as "packages" which can be easily transported.
2. Individual Contributions: Opportunities will abound for individual faculty involvement, for they will be the major source of leadership in the development of modules.
3. Scope: The scope of installation can be limited and introduced step-by-step, experimentally.
4. Data Base: Development of modules will use research design and methodology for support and validation. Module effectiveness will be measured and reported publicly.
5. Economic Return: Many faculty members should receive a financial return from their development of module materials.
6. Faculty Services: Faculty will have supporting instructional services offered to them by clerical help, students, semi-professional and expert people in specialized areas such as media uses and measurement.

VII. The Process of Model Development

There should be no illusion about the scope of tasks necessary to the development of so radical a teacher education model. There can be no legitimate hope of an immediate payoff. Indeed, the process of full model development should be geared to a slow beginning and a continuing acceleration. The seven-month period assigned to model development by the RFP is certainly not enough time, for example, to construct all the modules, nor should it be. The basic model can be built, but since it is ultimately an empirical enterprise, the full development of the model, at least theoretically, can never be complete. But it can be developed, over time, by the accretion of modules and by restructuring as evidence demonstrates need.

The initial scope of the model will be limited to the so-called professional sequence. Traditionally this comprises about 25-35 per cent of the total collegiate career of an elementary school student teacher and includes subject methodology, skill methodology, educational philosophy, educational psychology, and field practice. This professional sequence usually extends over a period of two and possibly three years.

In order to make these projections the process steps of development are reviewed. They are as follows:

1. Identify and state the central concepts of the teaching function which define teaching behavior under changing conditions.
2. Specify behavioral objectives reflecting these concepts.
3. Order behaviors in sequences and groups.
4. Determine appropriate educational strategies.
5. Develop appropriate materials and activities.
6. Test for instructional validity.
7. Specify supporting structures and resources.
8. Develop mechanisms for change.
9. Develop strategies for dissemination and diffusion.

We will produce the following elements of the model:

1. An extensive listing of concepts appropriate for the professional sequence.
2. A specification of related behaviors on *a priori* basis.
3. An organization of these behaviors in Instructional sequences and groups.
4. Descriptions of appropriate educational strategies.
5. Development of four or five sample modules in detailed formats and descriptions and procedures for developing other modules.
6. Plans for evaluating the instructional validity of modules.
7. A consideration of supporting structures and resources.
    a. specifying student personnel procecures.
    b. suggesting patterns of faculty and staff deployment.
    c. suggesting patterns of administrative organization.
    d. developing a limited number of educational specifications for physical facilities and equipment.
8. Specification of procedures and mechanisms for change.
9. Formulated strategies for dissemination and diffusion.

George Peabody College For Teachers. Richard H. Hinze.

Introduction:

We are presenting a feasible and innovative program which will lend itself to nationwide application after further refinement. The innovative ideas are commensurate with logic, demand and research. They can be put to work within one year of time. Some of the features which come to attention are; the five year education tutorial program; the vertical teams of trainees; trainee participation in research and evaluation; self-supporting internships for the fifth year; and self-supporting clinical professorships.

The preliminary model which follows summarizes the five year elementary teacher training program in such a way that one may obtain and overview of the model along with the introduction of the innovative features of the program. The details are not worked. The overall design should allow the reader to pick up a feeling for what the nature of the program will be, what behaviors the trainees should have upon completion of the formal five year program, and what rationale is for this particular design. Therefore, while logically the rationale should appear first in the presentation, we have elected to present it last in order that the reader may have a picture of the proposed procedures which grow out of the rationale.

Preliminary Model Description:

This proposal calls for a five year program of elementary teacher preparation including two summers of actual undergraduate experience with children or youth and two summers of study at the graduate level.

At the undergraduate level approximately seventy to seventy-five percent of the work will be in general education. All trainees will be required to obtain an academic major reasonably relevant to the curriculum of the elememtary school. Approximately twenty-five to thirty percent of the undergraduates will be in professional training in a continuing education tutorials, which begins at the freshman level and includes general and educational psychology, general sociology, teaching of reading and mathematics and student teaching. Almost all of the professional education experience will be in tutorials with a vertical team, in practicums, in either laboratory settings, or in classrooms with children.

The fifth year, which comes after acquisition of the Bachelor of Arts Degree, includes two summers of intensive study, participation in both weekly internship seminars and weekly sessions with the vertical team in the tutorial setting, and an academic year of full-time teaching as an intern at two-thirds of a beginning teacher salary.

Unique features of the program which are described in more detail on the following pages include:

(a) Academic major
(b) Five years of tutorial work in education which will be interdisciplinary
(c) Continuing membership on a vertical team moving from novice to leadership responsibility.
(d) Development of a procedural specialization such as guidance,

tests and measurements, educational media, etc.
(e) Internship year at two-thirds beginning teacher salary
(f) Two summer experiences related to work with children
(g) Acquisition of both B.A. and M.A. degrees
(h) Self-financing "Clinical Professorship" for each eight interns
(i) Development and participation in training program and self-evaluation.

General Education

Academic Major

During the four undergraduate years approximately seventy to seventy-five percent of the time will be devoted to general education studies. Of this, approximately one-half will be occupied in the study and acquisition of an academic major selected by the student. It is to be assumed that the student will select a major which is reasonably relevant to the elementary school curriculum. Examples of relevant majors may be from the humanities, natural sciences, or social sciences; whereas majors in areas such as business adminstration or engineering probably would not be considered relevant.

General Curriculum Requirements

The other half of the work in general education is to be considered general study which will help to prepare the elementary teacher trainee to cope with the breadth of curriculum in the elementary school. This means that a student will need to take work in art, music, English, speech, mathematics, natural sciences, and the social sciences. Presumably there will not be enough hours of study in any of these areas to qualify the student to claim a minor. Thus the college or university will need to recognize the work in education (twenty-five to thirty percent) as a second major or as a minor as each sees fit.

Importance of General Education

Criticisms have been aimed at elementary teacher education for some years now that too much time was spent on how to teach and that the teachers lacked depth of understanding in what to teach. This program design does not yield an inch on requiring educational psychology, sociology, and much direct experience, but is an attempt to provide teacher trainees with much greater depth in academic work.

Fifth Year Program:

The fifth year program is based upon an assumption that four years of study and preparation is insufficient to accomplish all the work that an elementary teacher trainee needs to qualify as a beginning teacher. The statement beginning teacher implies that even after the five years of formal schooling and training there is still much work to be done before a person reaches the master teacher level. It is to be assumed that the beginning teacher, the employing school system, and the teacher training institution will continue to work on the design of in-service training programs to assure continuing professional growth.

A second major assumption in elementary teacher education is that many if not most, of the trainees would not ordinarily be able to afford a fifth year of study without some support. Therefore, this proposal includes the employment of the trainees as interns for the academic year on a two-thirds beginning salary basis. This will enable him to continue one more year of training and study and to acquire a Master of Arts Degree in Elementary Education.

A third important assumption is that if a student begins his active teaching career still as a student it can be hoped that the studious attitude toward his profession might carry over into his future years of practice.

The work toward the Master of Arts degree is proposed in three parts: strengthening a procedural specialization, continuing study with the vertical team in the Educational Tutorial, and a final summer of intensive foundation study of educational theory.

1. Procedural specialization

Each student, in addition to an academic specialization, can strengthen his contribution to an on-going elementary school faculty by furthering his study in a procedural specialization such as child guidance, tests and measurements, educational media, programmed instruction design, non-gradeness, or team teaching. This does not imply that student will study this area for the first time at the graduate level, or that even one part of one year of further study will make him an expert. However, it should alert the student to the depth and importance of the area chosen and may help him to make a useful contribution in his new faculty relationship, particularly as part of a teaching team.

2. Continuing study with the Vertical Team in the Eduation Tutorial

During the pre-internship summer when the undergraduates are not in residence the fifth year student can meet the supervising teacher (clinical professor) with whom he will be working during the following academic year. The eight interns who will work with the clinical professor can begin to plan their year of work, individuals can become acquainted with the class situation to which they will be assigned, and plans can be laid for the weekly seminars that the eight interns will have with the clinical professor. In addition, students can plan how they will work in their leadership roles as graduate level members on the vertical teams during the coming year. Interns thus will have weekly seminars with the clinical professor and will continue to meet with their vertical teams each week during the academic year.

3. Intensive foundation study of educational theory

After an academic year of full-time teaching, the trainees will be ready for some intensive reexamination and further study of educational theory and research in the foundational areas. This means a summer of study in psychology, socio-cultural foundations, and history and philosophy.

While this study represents thirty percent of the work toward the Master of Arts degree and does indeed lend itself conveniently to a traditional course structure, it is to be hoped that the work will be done on an interdisciplinary basis and that the college professors will work as a team with these students who have been working on teams for five years.

Summer Experience:

Between the sophomore-junior and the junior-senior years teacher trainees will be expected to select two experiences from a list of choices such as:

1. Travel and study abroad with some time devoted to examination of school systems in other lands.
2. Summer camp counseling.
3. Neighborhood youth volunteer or salaried worker.
4. Recreational or swimming instructor in areas where children are involved.
5. Work as a teacher's aide in Project Head Start, ESEA - Title I or III Project, or other similar experience.
6. Work as a social work aide.
7. If from a rural background, work in a large metropolitan area in child or youth work; or if from a city background, work in a rural setting.
8. Work as a tutor in a remedial reading clinic.

Student Teaching:

During one semester of the senior year, half-time will be devoted to student teaching with one-half the semester teaching in a socially "disadvantaged" area and one-half in an "advantaged" area. During the student teaching experience, the student will continue to meet with the members of his vertical team in the Education Tutorial Program. Assigned to student teachers to help "make sense" and draw generalizations from the two contrasting experiences will be a professor from the field of social anthropology.

Internship Year:

Interns will be placed in neighboring school systems in teams of four at two-thirds regular beginning salary for the year. At least two teams will be placed in a school system. This will allow the school system to free a master teacher to become a clinical professor with the college or university but remain on the school system staff as supervisor of the eight interns. The clinical professor would have a dual role of supervising the eight student interns plus meeting with their educational tutorial vertical teams. Obvious advantages to this plan are:

(a) high level supervision of interns
(b) no additional costs to school system or college
(c) first year teacher-interns who are studying intensively on a degree programs
(d) closer relationship of school system and teacher training institution
(e) participation of master teachers and first year teachers with undergraduates who are preparing to teach or doing student teaching.

One point that needs emphasizing in this program is that the accumulation of 8-thirds of beginning teachers' salaries (which will be freed by the eight interns teaching on a two-thirds salary basis) should make it possible for the school system to release a master teacher full time. The master teacher training institution. This should result in no increased cost to either the school system or the university.

Education Tutorial:

Continuing seminar for five years which will include:

(a) vertical team of twenty interns, senior, junior, sophomore, freshman (four from each level)
(b) sensitivity training
(c) continuing observation, participation, practice in a variety of school settings; i.e. different age levels, varying socio-economic levels, different organizational practices, innovative as well as standard
(d) familiarization with teaching procedures in various curriculum areas
(e) conduct an intensive child study project
(f) participate in at least one major educational research project as a research assistant or helper. (At Peabody, for example, this could be in the Demonstration and Research Center for Early Education, the Institute for Research on Classroom Learning, the Child Study Center and Remedial Reading for Mental Retardation and Intellectual Development. All of these projects are in constant need of student assistants in various phases of the research activities.)

Vertical Teams:

Each teacher trainee from the moment he begins his freshman year until the end of the fifth year as an intern will be a member of a working team of twenty students. The teams will be comprised of four students from each level (freshman, sophomore, junior, senior, graduate) and the students will progress through the five years together from the freshman novice level through the responsibility of team leadership as interns during the fifth year.

Certification:

Those few students who must withdraw from college prior to the B.A. degree can be certified as para-professional aides available for employment by school districts. Those students who must terminate after graduation with the B.A., because of their student teaching experience, will be able to become certified to teach in those states still accepting four year programs for certification. The college providing the recommended five year program should, however, certify only those students who complete the fifth year. The burden of certification should be left with the students who leave early and they should deal directly with state certification offices. Those students who complete the fifth year, with the exception of certain unique state requirements (such as Texas History) should be certifiable in all fifty states and for Federal Programs in the United States or overseas.

Training Program and Self-Evaluation

One feature of the proposed program which will never cease to change is the evaluation of the training program itself and a plan for student self-evaluation. In order to encourage students to state objectives carefully, plan procedures related to the objectives, measure progress or lack of it, and thus revise or be reinforced, they will be involved in the actual design of evaluation of their own training program. In working with the tutorial staff to accomplish this task the students, the staff, and the program should benefit. Secondly, by means of instrument design, use of tape recorders, and T--group training the students should learn to become careful evaluators of their own performance.

The objective of this plan, of course, is to help the students become oriented toward continuous evaluation of everything they do in education. Doubtless both staff and students will struggle with this problem, but no one ever wisely claims that evaluation is easy.

Rationale and Procedures

The material which follows is a presentation of the basic items in the rationale underlying the program and a suggested procedure or set of procedures which stem from the item.

Administration:

Early role identification is advisable as a holding influence and as a recruiting device. Once students decide that they have made their career choice they want to get on with it. Delay of experience in the field can be discouraging and misleading to the student. Early experience may serve to encourage students to continue in their chosen field; it may also serve to inform some students that they have made a wrong decision for themselves at a point early enough in their college careers that they can still enter another field with a minumum of lost time. Related procedure: The tutorial program beginning during the first part of the freshman program.

Peer learning is a means by which students in a program have maximum opportunity to learn and to teach one another. Since teaching is rapidly becoming a team operation peer learning is an integral part of professional education. Related procedures: Participation in vertical teams where during the five years students will work closely with three students in their own level, sixteen who precede them and sixteen who follow them--a total of thirty-five.

Professional identification and clinical setting provide superior means whereby the developing professional can feel that true progress is being made by him. Related procedures: The internship year where the trainee actually is out in the field as a paid person allows him to feel that he is moving along in his development and that he can now identify with professional educators. At the same time the close supervision and continued participation in seminars and tutorials remind him that he is also still a learner.

Instruction:

Regardless of styles of organization, teachers in the elementary school are going to have to deal with a broad spectrum of the elementary curriculum. Related procedures: A broad general education is an essential quality of the undergraduate program for elementary school teachers.

Academic specialization allows a student to go into some depth in a particular discipline of his choice and helps him to develop a feeling of scholarship and research that cannot be obtained without such an opportunity. Related procedure: An academic major is required in the proposed program, the only restriction being that it be reasonably relevant to the elementary curriculum.

Culture shock is now recognized as an occupational hazard for beginning teachers most of whom come from middle class backgrounds and have been protected from the trials and tribulations of life. Oftentimes when new teachers arrive in a community (most well trained teachers enter urban communities) they are assigned to areas where disadvantaged families live or they are sent into a ghetto area. Unless a person has some training, experience, and background about cultural and socio-economic disadvantage culture shock is the usual result. Related procedures: Students are asked in the proposed program to take at least one summer experience in a cultural, or socio-economic setting unlike their own. Secondly, the student teaching experience includes at least one half semester in a disadvantaged setting. Thirdly, a social anthropoligist will be a part of the team of faculty members who work with the student teacher and the vertical team in the educational tutorial setting.

Participating in change is an important part of a training program because research and study brings about new program ideas and needs constantly. A member of the teaching profession needs to understand how change is brought about. Related procedures: The training program includes actual participation in on-going research projects as student assistants. It also includes during the tutorial work some participation and observation in schools which are operating on a standard program basis and in schools which are trying out innovations with instruction, materials, equipment, or organizational patterns.

Attention to individual differences is something to which the teacher can no longer simply give lip-service. Tomorrow's teachers are going to be required to cope with the problems of individualized instruction. Related procedures: Each student will conduct an intensive, longitudinal, individual child study under the supervision of the tutorial staff and with the critique of the vertical team. A student's own child study combined with the review of thirty-five others in his vertical team experience should provide considerable understanding of the differences within and among children. Secondly each student will be asked to observe and participate in a special education program in order to develop some knowledge and understanding about the development of an organized program for children with specialized difficulties.

Materials :

Experience with and understanding of a variety of instructional materials is a part of teaching. To attempt to do a professional job of working with children without being aware of what materials are available, and what are not is no longer tolerable. Not only an awareness is essential, but a student needs to know how and when to use them. Related procedures: From the beginning of the freshman year students will be in classrooms with children. Part of the task while there will be to study and analyze what materials are being used and how. Further, then, in the education tutorial students will be required to search for new materials, analyze them, and discuss them with the vertical team members.

Ready-made materials are not available and teachers need to know how to develop new materials for unique instructional situations. Related procedures: Students will be encouraged to develop new materials from the very beginning of their training programs. They will have opportunities to develop, use and test materials in regular classroom settings, in individual teaching situations, in research settings, and in special education settings.

Equipment:

Experience with and understanding of the use of educational equipment is critical in teaching today. Mere technical operation of machines is not enough. What machinery is appropriate and inappropriate at what times is far more important than technical operation insofar as teaching is concerned. Related procedures: Students will be in the learning resources laboratory off and on constantly during the five years they are undergoing formal training. During the time they are in training new equipment will come on the market so staff and students alike will need to stay alert for new developments as well as familiarization with existing opportunities to apply machinery to instructional purposes. Tutorial staffs and vertical teams should constantly challenge students to use hardware whenever appropriate and then challenge them as to the appropriateness.

Educational television(ETV) both closed and open circuit is becoming so massive and popular in the United States that teachers are forced to be alert to applications which are appropriate to learning in the elementary schoolroom. Related procedures: Teacher training institutions can no longer operate without at least a simple chain of closed circuit television equipment on campus. The nation is gradually being blanketed by open circuit ETV of high quality and many school systems are incorporating closed circuit television. Therefore, part of the required training during the tutorial work and the laboratory experiences includes the use of televised programs. Also video-tape will be used to help students evaluate the efefectiveness of their own teaching.

Staffing:

Inter-disciplinary staffing is important to an instructional program for prospective teachers if they are to learn to consider educational problems on a multi-faceted basis. Related procedures: The education tutorial-vertical team program will be staffed by a social anthropologist, an educational psychologist, a clinical professor from the field, and a college education faculty member.

Continuous, close contact with experienced interdisciplinary faculty and field personnel is an essential ingredient to the preparation of elementary school teachers. Such opportunity must be provided without exorbitant increases in the cost of teacher education. Related procedures: The close contact can be provided as indicated in the section above. The cost factor is an exciting prospect in this proposal because of two advantages which grow out of it. One education faculty member can work with at least three tutorial vertical teams of twenty students each. Presently a supervision load of about twenty is considered a full time load in many teacher education institutions. This means an actual reduction in the number of faculty members at the doctoral level needed under that load factor. Secondly, the clinical professors are self-funding because of the manner in which the school system budget can provide for the release of master teachers on the basis of one to each eight interns who are employed at two-thirds of beginning teachers' salaries. Some of the net gain will be offset by providing social anthropologists and educational psychologists to the staffing pattern, but with careful planning and consideration the college should not have to increase its expenditure and the students will certainly benefit through having such a powerful staff with whom to work.

Evaluation:

Objectives, related activities, measurement, and reinforcement or revision are phases of teaching that must become expected behaviors of competent teachers. Related procedures: Participating with tutorial-vertical team groups students will be forced to plan to try out, to measure, and to re-assess ideas, activities, teaching procedures, new materials, and a myriad of other things. Constant evaluation of all experiences of their own as well as those of the students in their vertical team should make students aware of the need for constant evaluation of teaching.

Evaluation of one's own performance in teaching is necessary if a teacher is to seek a way to improve the quality of his work. Related Procedures: Each experience that a student has in classroom performance will be evaluated by himself as well as the tutorial staff and team mates on the vertical team. Secondly, video-tape equipment will be used to record teaching performances of individuals which can then be evaluated in numerous ways as has been demonstrated clearly at Stanford, Purdue, and San Jose State College.

Evaluating one's own training program can lead to an orientation of continuing responsibility to evaluate one's own classroom performance as well as a commitment to teacher education as a professional responsibility. Related procedures: Any teacher education program needs constant evaluation. This does not have to be the sole responsibility of the teacher education staff. Students participating in the program can certainly benefit from helping with the design of the evaluation program, carrying it out, and making recommendations which are reinforcing to the program, and making recommendations for change where improvement is in order. This means that during any five year period, students may actually benefit from the identification of the strong qualities of their own training program, and they may benefit from changes which have been brought about from their own recommendations based on systematic evaluation.

University of Illinois. Bernard Spodek.

I. Introduction

Programs of teacher preparation in the field of elementary education have tended in recent years to fit more and more closely into a common mold. These programs consist of a broadly based set of liberal arts courses, often including an area of concentrated study, plus a sequence of professional courses in education. This professional sequence invariably includes course work in social and psychological foundations of education, child growth and development, elementary school curriculum, methods of teaching elementary school subjects and student teaching. While the organization of the program may vary from college to college (i.e., block programs vs. separate subject courses), the content of the courses remains relatively constant.

There also tends to be a constancy in the way in which these courses are organized and taught. There is a heavy dependency on lecture-discussion type courses, often based upon the unstated assumption that students will be able to translate verbal knowledge about children and the educative process into actual classroom procedures. The one portion of the teacher preparation program which is most closely related to actual classroom procedure and techniques of teaching children--the student teaching experience--generally represents that portion of the program that is least controlled by the teacher preparing institution. The responsibility for this part of the program is delegated to practitioners who, varying in competence according to the standards of local administrators, work with the students under a minimum of supervision from the sponsoring teacher preparation institution.

Such a program of teacher preparation presents several problems in insuring the competency of the beginning practitioners:

1. The selection process at every level of the program is based upon criteria which often has very little to do with the teaching process. Student potential is assessed on the basis of the academic achievement gathered through the administration of paper and pencil tests or term papers. No assessment is made of the individual's potential to work with people. The only information predictive of teaching behavior of the student is gathered at the very end of the program during the student teaching experience, at a time when very little use can be made of the information.

2. The content of the program helps students learn about the educative process; it frequently does not help them learn how to teach. The lack of practicum experiences related to most of the courses leaves the activity of the training program primarily verbal. When we consider that much of this verbal activity has little relationship to teaching behavior this represents a serious deficit.

3. The program provides little flexibility since all students are expected to participate in and benefit from common activities. Completion of a sequence of courses assumes attainment of the necessary requisites for teaching. There is little room for meeting individual differences in such a program or for additional preparation that some students need.

4. There is little provision for feedback in such a program model. Teacher education students have little information about how well they are progressing towards professional competency; teacher educators have little information about the effectiveness of their instruction in helping their students progress towards professional competencies; and institutions have little information about the effectiveness of their programs for developing competent teachers. There are no mechanisms within existing programs which provide for systematic modification and improvement of the program.

A model for a teacher education program must be developed that will solve the above problems. We propose a basic systems model with integral provisions for:

1. recruitment and selection.
2. variable program entry and exit.
3. performance specification based on a predictive task analysis and role differentiation.
4. regular feedback for participants.
5. system modification based on regular feedback provisions.
6. individualization of program via periodic diagnosis and performance evaluation based on a theory of successive approximations.
7. an external system monitoring concept.
8. cross institutional involvement in specification and implementation of program.
9. assignment of system tasks to the most efficient man, machine, and institutional components available.

The program must be designed to break out of the strait jacket of course-credits found in most traditional programs starting with the selection process and going beyond the usual terminal point of a program, so that the student continues in the program through his initiatory period in the field. The goal of such a program is the achievement of competence in teaching. Completion of the program, or individual segments of the program would be determined by the student manifesting competent behavior at set criteria levels, rather than by calendar and clock hours. The following proposal is intended to build such a model that could be implemented in a teacher preparing institution that has a sizable number of students.

II. Limitations

The field of elementary education can be subdivided into three distinct educational levels: preprimary (nursery-kindergarten), primary (grades 1-3), and intermediate (grades 4-8). The proposed model is built upon a recognition of instructionally significant differences at each level and would provide separate preparation for each. Such an organization would allow for the general understandings and competencies that underlie education at all three levels, as well as provide for the specific knowledge and behavior components that are distinct to each level. Since students in teacher education programs often wish to be prepared more broadly and since many state teacher certification programs include certification that cuts across more than one of these levels, the model will be designed so that students could select a single level of specialization or could work in two contiguous grade specialization levels. In other words, the model would allow students to prepare for teaching at the preprimary, primary or intermediate levels, or would allow them to prepare to teach at the preprimary-primary levels, or at the primary intermediate levels.

A design for training tomorrow's teacher must be based on a careful prediction of the kinds of roles demanded by innovative concepts of elementary education. Practical demands suggest that skill at performing a variety of tasks, predicted as well as traditional, is needed as a competence base upon which to build. Thus, one prerequisite of the design presented herein is a description of the types of instructional levels and roles envisioned.

Preprimary level

The preprimary level (nursery-kindergarten) can be differentiated from the rest of the elementary education program in terms of the methods of instruction used and the organization and materials that support this instruction. Since young children do not read--activity including play is the prime method of instruction; teachers need to be aware of the way in which play and other activities can be guided so that it is educationally potent. The teacher also plays a more motivant role in working with young children and has to develop supportive behavior patterns. She also needs to work more closely with families and social agencies of children. The elements of preprimary education will probably remain constant.

As nursery schools and kindergartens develop the teachers in these units will also become coordinates of educational teams. Paraprofessional personnel will play an important role in the classroom. A range of ancillary school personnel, including social workers, medical practitioners, family life workers and school-community coordinators will also become involved in the education of young children. The teacher must develop skills in working with these persons in order to orchestrate the learning opportunities for young children.

The primary level

The main concern of the primary school is, and will continue to be the teaching of basic school skills. Increasingly the schools are becoming aware of the range of individual differences in backgrounds and abilities of children that influence the acquisition of these skills. Organizational patterns are developing to deal with these differences in an effective way. Nongraded primary schools and individualized prescribed instruction are two recent ways of dealing with such differences. Teachers need to become assessors of children's abilities and prescribers of learning activities in a new way.

Whether in traditional organizational settings or in innovative situations one of the key responsibilities of the teacher will be to match activities and materials to the educational needs of children. The teacher of primary grades would, therefore, have to have a knowledge of both the "hardware and software" of instruction as well as knowledge of ways of assessing the learning capabilities of children.

Intermediate level

The problems of the intermediate school demand clarification of curriculum focus. At his level the educative process becomes increasingly concerned with substantive areas of content. This has implications for organizational patterns and for a functional differentiation of personnel who serve as teachers of this age group.

Fifth-through eight-grade students, generally the ten to fourteen-year-old group, are now educated variously in self-contained classrooms or the typical junior high, totally departmentalized situation. Teachers now assigned to teach these students have been trained either as elementary self-contained classroom generalists, or as high school-subject area specialists. There is no relationship between the way teachers are prepared and the way in which theyare assigned in the field. Both groups find themselves teaching children whose needs, interests, and behavior patterns exceed their competency.

Based on a growing knowledge of the intermediate child, the advantages of instruction tailored to individual progress, and an awareness that persons with specialized competencies must guide the learning of these children, this proposal includes provision for the training of persons to fill roles not ordinarily considered a part of elementary teaching. A listing of such roles implies the type of organizational patterns predicted, and assumes flexible individual and group instruction.

It is predicted that teaching roles will differ along at least two dimensions. The first of these is essentially along a dimension of competence and responsibility. Highly trained and experienced persons will assume leadership roles, i.e.,--master teacher, team leaders, or senior specialists; other roles will require lesser amounts of training and experience.

The second dimension involves role differentiation. Diagnostic-guidance specialists will maintain the continuity of programs and prescribe experiences for students. Skills specialists and content area specialists will maintain both instructional classes and ongoing projects within their specific field of competence. Materials and resource specialists will be used to support program development.

The technology and theory for such instruction now exists. Training programs must take the next step forward; persons must be trained to fill such roles before wide scale implementation of new intermediate programs is feasible.

Identification of types of training personnel

The development and implementation of the model of teacher education outlined in this proposal will require the expertise of a wide variety of professinnals. As with the specification of teaching performance at the elementary school level, identification of participating personnel will be based on a behavioral analysis of the training task to be achieved.

The proposed program would initially separate instructional tasks into two categories: Content would be selected in terms of relevance to practice. To identify the content. Will require the service of content specialists, of practicing teachers, and teacher educators. Practice experiences will be identified by clinicians, systems psychologists, practicing teachers, and again the mediating services of the teacher educators.

Some of the expertise required to implement the model will not normally be found in teacher educators, since the goals of this program are different from those of typical teacher education programs. Since this is expected, a training of teacher trainers component will be a part of the proposed model.

General and professional education

While it is possible to design a model for training elementary teachers to include both professional and general education, this proposal attends primarily to professional program components. But teachers of children need both breadth and depth of general knowledge as a basis for content competency. Therefore, the model will specify academic criteria for entry into the various specialized areas of teaching at the elementary level. This will permit maximum flexibility of model implememtation across the widest possible variety of training institutions.

Preservice and in-service

Traditional models for the training of elementary teachers have assumed program completion and teaching competence as end results of a four or five year college course sequence. In-service training has been furnished via school staffed workshops and/or graduate degree programs , usually in settings unrelated to the elementary classroom. One basic component of the model proposed is a continuation program for teachers after they exit from the preservice phases and move into cooperating school districts as beginning practitioners. This component will also serve as one source of feedback for total system modification and improvement.

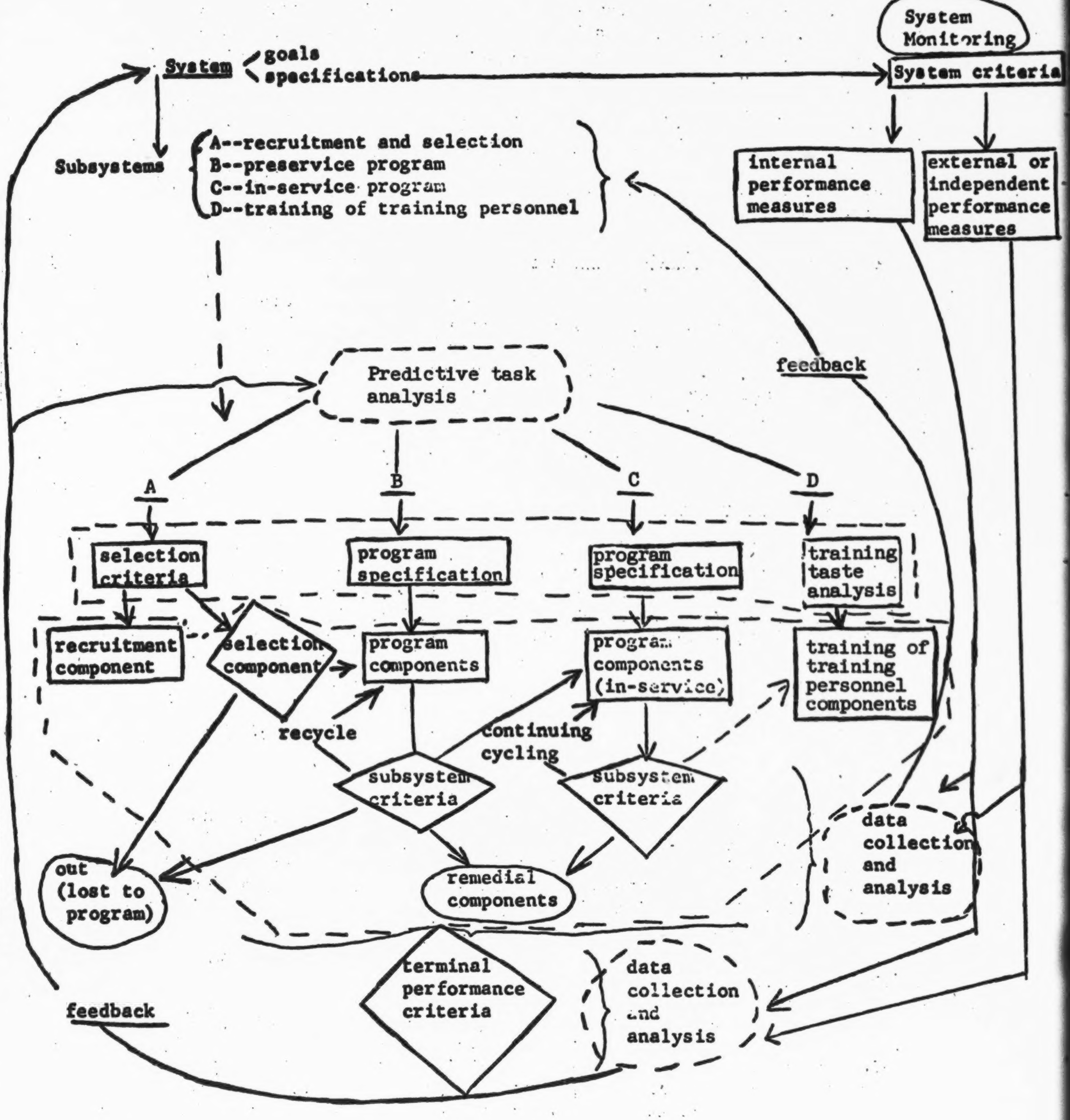
III. The Model

The model of teacher education envisaged in this proposal has two major dimensions: (1) a total system for the professional education of elememtary teachers, and (2) specification of cross-institutional cooperative patterns. The paragraphs which follow are intended to be descriptive of the system and suggestive of the possible patterns of interaction between institutions and training personnel.

A systems design

The total system (Diagram A) will have at least four major subsystems: (1) recruitment and selection, (2) the preservice program, (3) the in-service program, and (4) training of training personnel. For each subsystem, there will be various subsystem components, e.g.,-- a preservice program component such as a classroom management component, and instrumentation components, e.g.,--computor simulation of critical incidents in management procedures.

DIAGRAM A


System Monitoring
System
goals
specifications
System criteria
Subsystems
A--recruitment and selection
B--preservice program
C--in-service program
D--training of training personnel
internal performance measures
external or independent performance measures
feedback
Predictive task analysis
A
B
C
D
selection criteria
program specification
program specification
training taste analysis
recruitment component
selection component
program components
program components (in-service)
training of training personnel components
recycle
continuing cycling
subsystem criteria
subsystem criteria
data collection and analysis
out (lost to program)
remedial components
terminal performance criteria
data collection and analysis
feedback

*--see diagram B

Recruitment and selection

Both the recruitment and selection components of this subsystem will be geared to a set of selection criteria which are derived from three categories of assessment; these are academic aptitude, social skill, and motivation. A degree of flexibility must be added to current selection policies by permitting the mediation of scholarship requirments by evidence of other competence. In the area of social skill, situational tests, and reactions in simulated classroom and micro-environments offer opportunities for situational assessment of skill in human relations which must be explored as possible predictors of success in teaching. The evidence now suggests that academic and social competence are necessary but not sufficient conditions in the selection and recruitment of teachers; the individual must want to teach. Possible sources of data for such selection criteria are, paper and pencil tests and responses in group dynamics procedures.

The preservice program

Both skill acquisition and professional knowledge represent the goals of the preservice program, since a practitioner must know both what to do and how to do it. While foundational program components such as Child Behavior and Development and Educational Psychology are an important part of the program, instructional Psychology are an important part of the program, instructional methodology remains the backbone. These methodology components will include the study of content as well as experiences designed to achieve competent performance. In the selection of all of the content of the program, relevancy to educational practice will be the prime criterion for inclusion while validation of the content will be made by academic specialist.

In a Child Behavior and Development component, for example, the content will not be determined by what is relevant for continued research in the field, but rather by the application of principles, concepts and skills by the classroom teacher. Ways of observing children's behavior and assessing developmental levels might be the major focus of such a component. A full range of simulated, micro- and full-class environments would be used to provide skill acquisition experiences at the same time as students within the program are learning the concepts.

The in-service program

This subsystem would be structurally similar to the preservice subsystem in terms of application of the system design. It will be designed, however, as a logical and practical progression of professional training for persons exiting from the preservice subsystem and embarking upon a probationary field assignment. Programs here will differ from traditional academic graduate work in that it will be, like the preservice program, performance oriented. The field itself, and the problems which novice practitioners encounter will become both the stimulus and the setting for the various program components of this subsystem. Continued opportunity for monitored approximations of terminal teaching performance will be provided.

This professional subsystem is intended in no way to substitute for pursuit of academic graduate work which may be desired and needed by some practitioners.

Training of training personnel

Because of the heavy emphasis on systems application and the resultant importance of performance criteria and feedback provisions, it is expected that training personnel at all levels will have to be specially prepared. A related, but separate subsystem for achieving this purpose is planned. It will operate in conjunction with the elementary teacher preparation subsystems utilizing its programs as both laboratory and classroom. It will furnish personnel for the total system and will likewise draw its recruits, at least partially, from the ranks of the teachers moving through the earlier subsystems.

Interaction of components

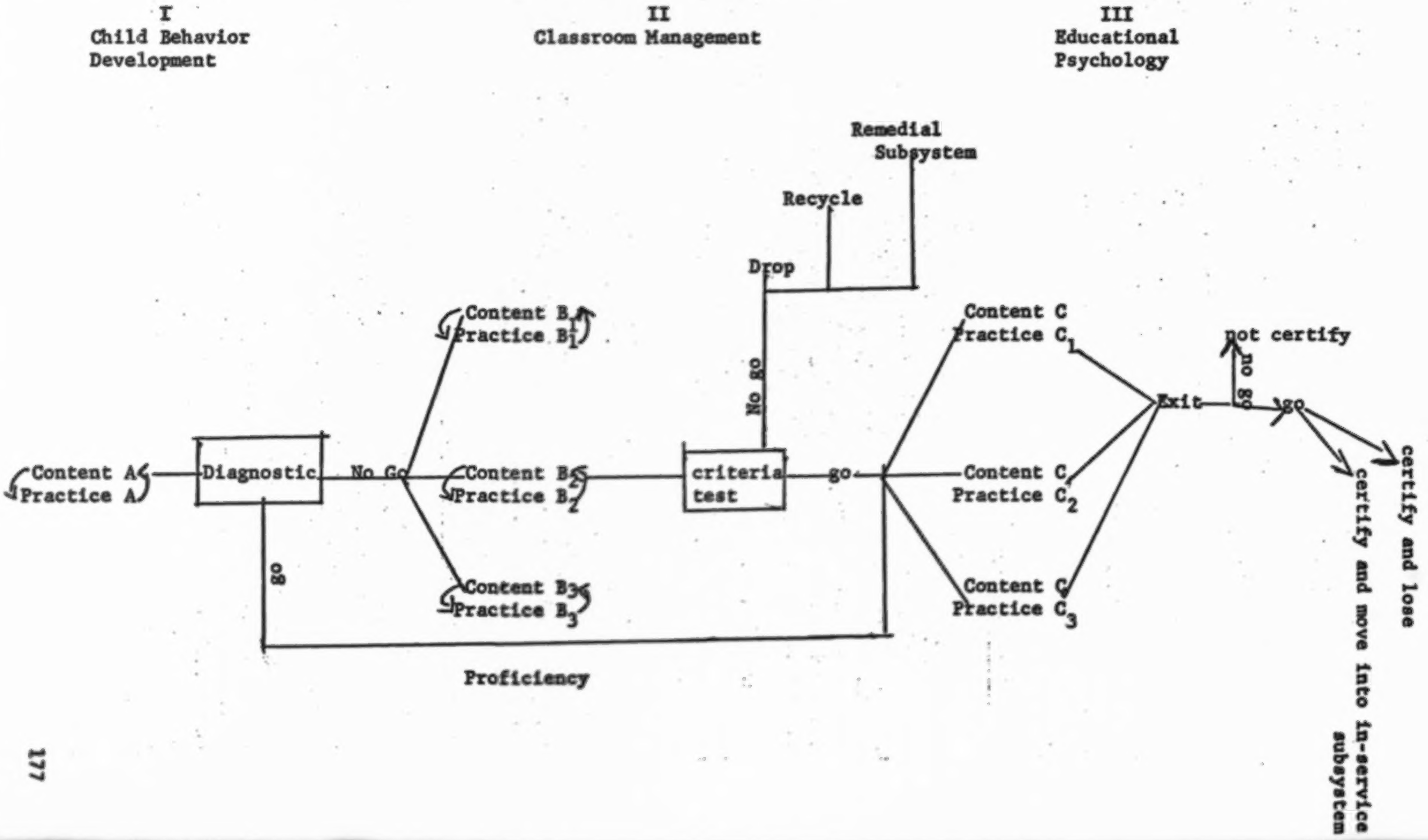
While subsystem components and their actual relationship to other components in the total system cannot now be specified, an example of the way in which components would be organized can be given. Diagram B is an illustration of this organization of a subsystem within a system. Component I, II and III are each organized differently to show the range of possibility here. Each of these components has a content portion and a practice portion which are interrelated. In some components, possibly Child Behavior and Development, all students will be involved in the same core of activities (see Component I, Diagram B). In other Components, differentiated experiences will be provided to students at each level, possibly classroom Management. Students in the Preprimary track will take Content B^1, and Practice B^1. Students in the Primary track will take Content B^2 and Practice B^2, and students in the Intermediate track would take Content B^3, and Practice B^3 (see Component II, Diagram B). In still other components, possibly Educational Psychology, students might all be involved in the same content but would have differentiated practice based upon levels of teaching (see Component III, Diagram B).

The system includes many decision making points for determining the sequence of activities for students in the program. Each component set of activities is proceded by a diagnostic test. As a result of the diagnosis the student may proficiency the total component and skip over it entirely, or proficiency part of it and take only a portion. If he does not proficiency it, the student would be required to take the entire component.

At the termination of each component experience, the student is given a criterion tests. If he has mastered the content and practice elements he moves on to the next component and the sequence of diagnostic-program-criterion test begins again. If the student does not meet the criterior tests, three alternatives are available; he may be dropped from the program, he may be asked to recycle, taking the content and practice sections again, or he may be put into a remedial subsystem. Subsystems will be modified as collected data suggest.

DIAGRAM B

Preservice Program Subsystem


I
Child Behavior
Development
II
Classroom Management
III
Educational
Psychology
Content A
Practice A
Diagnostic
No Go
go
Proficiency
Content B1
Practice B1
Content B2
Practice B2
Content B3
Practice B3
criteria
test
No go
Drop
Recycle
Remedial
Subsystem
go
Content C
Practice C1
Content C
Practice C2
Content C
Practice C3
Exit
no go
not certify
go
certify and lose
certify and move into in-service
subsystem

At the end of the preservice program subsystem there are again a series of alternatives available. If the student does not meet the performance criteria at this point, he may not be certified. While such a decision ought not to take place if the program is effective, room must be left for such a decision to be made. If the student does meet performance criteria, he may be certified and lost to the program. The number of students who graduate from teacher education programs and who take positions in remote school systems or who never teach suggests this is a realistic possibility. The third alternative is that the student who meets performance criteria will be certified and will move into a position in a cooperating school system. In this third possibility, the student's exit from the preservice subsystem of the teacher education program also signals his entry into the inservice subsystem, which like the early subsystem, would be based upon a cooperative effort of higher education institutions and local school agencies.

Feedback or evaluation

The model conceptualized in this proposal utilizes the full regenerative possibilities present within a systems framework; it features an evaluative feedback loop for each component, each subsystem, and for the entire system. Since performance and content expectancies will be available at all times, monitored performance trials, monitored and regular approximations of terminal performance behaviors, and cognitive response devices will serve to furnish regular feedback to each student in such a way that self assessment of progress will be possible.

Data collected from such performance and content measures, when assembled for groups of students, will be stored, analyzed, and utilized as a check and a corrective on trainer instructional effectiveness and on system effectiveness.

In addition to internal, programmatic feedback, an external monitoring group is proposed for the purpose of collecting independent measures of system effectiveness. Such a group, making its own assessment of the appropriateness of system criteria, and of the extent to which the system meets its goals, will serve to furnish feedback for the modification and improvement of the training system. *It still also provides a much needed* validity check for all research which accompanies the program.

Cross institutional cooperation

A number of significant institutions play roles in the total educative process of elementary children. It is highly desirable that all of these institutions interact in the preparation of practioners. Diagram C suggests general relationships of those agencies which will cooperate in taking responsibility for, or furnishing supplementary services to the core program.

The model assumes interaction among these agencies both in the development stage and at all implementation levels. In stages 1 and 2 of the development of model specifications, key persons representing each type of agency will be called on to contribute to the overall scheme. This type of involvement should enhance flexible implementation of the core program, and make efficient use of the highly specialized personnel available within each agency.

For example, the recruitment and selection component demands personnel trained and experienced in working in assessment and counselling roles, in the cooperating schools, the junior colleges, and within the senior colleges. The various practice components demand specialized personnel within the elementary schools, and in laboratory settings at junior and senior college levels.

Extensive facilities and logistic support for training programs demand an integrative use of the physical facilities and pupil populations of the elementary schools, and the institutions of higher education. The growing importance of supplementary educational centers to elementary programs calls for an integration of their facilities, personnel, and functions into the various components of a training model.

Certification, long an arm of the State Department of Education, must become a natural outgrowth of a performance oriented program for the training of teachers. As with other phases of the core program, criteria for certification must be developed interactively and become a functional step in the path to professional improvement.

Inservice training becomes an integral part of the ongoing training program. No point in the overall model calls for greater cooperation among agencies than does inservice. Here, the typical graduate course work sequence, far removed from the realities of field problems, must interact with the field setting for this training. The training personnel will be drawn again from cross levels of agencies.

University of Tulsa

Problem: Design a program of learning experiences to develop creative teachers.

Basic Assumption: The utilization of creative teaching and learning experiences by the college faculty as it works with its students will enable these students to develop the ability to design learning experiences which will foster creativity in their students.

Goals:

1. Dedication - To develop a sense of dedication to the preservation, development, and enrichment of each college student's personality.
2. Flexibility - To produce a curriculum and organization which will encourage the college student to function maximally in an atmosphere of change, experimentation, and dynamic search for truth.
3. Democratic Atmosphere - To enable the college student to live out the concepts of democratic procedure in his college experiences and as a consequence develop a commitment to structuring all learning experiences in this atmosphere.
4. Commitment To Process - To demonstrate to the college student that life is nothing more and nothing less than a series of problem-solving situations and that this should be the grand design for learning experiences.
5. Faith in Human Beings - To affirm through example and interaction a basic belief in the educability and perfectability of the human family.

Product: Skilled educational craftsmen (teachers) who through knowledge will foster individuality, increase variability, and nurture creativity in their students.

Input: College students average or above in intelligence who display variability, and flexibility.

Treatment:

1. Individual programming as frequently as needed - a demand schedule.
2. Appropriate technological resources made available for every learning task.
3. Proficiency determined by applicable demonstrations.
4. Tutorial relationship with Educational Counselor (College Staff member).
5. Apprenticeship in predicting and changing human behavior.
6. Analysis of own behavior through video-taping and reviewing.
7. In-depth scholarship in at least one academic discipline.
8. In-depth study of human development and personality formation through interaction.
9. Formulation of a working philosophy for the educational quest.
10. Analytical approach to the end of developing Education as a discipline.

Definitions:

Individual Programming - A Demand Schedule:

Every student will be encouraged to proceed as rapidly as possible to reach a minimum proficiency profile for college graduates. A student's schedule for academic development will be completely flexible and available on demand. His experiential interactions (tutoring, counseling, student teaching) will be as flexible as external scheduling will permit.

Technological Resources:

Every area of subject matter will be available in the most palatible and cogent form. Video-tape, audio-tape, slides, films, programmed courses, computerized learning experiences, live instructors, etc.

Proficiency:

Whenever a student is ready to demonstrate his knowledge and skill in a certain area, he will be given appropriate tasks on which he will be evaluated. Every area will be analysed and proficiency must be demonstrated before the student is approved as having said proficiency.

Tutorial Relationship:

Each student will be guided by a college staff member who will be charged with exemplifying in his work what we expect the student to demonstrate in his: - a democratic approach to human growth and development, personality formation, a commitment to process, and a faith in human beings.

Education As A Discipline:

"Development of a knowledge of the skills of observation and analysis that are present at the various stages of development of the child...Opportunity in principle, to nurture powers of inventing new models and exploring their consequences, and to develop wider and deeper modes and levels of thinking in learners..." - Education as a Discipline, Marc Belth.

Rationale:

For many years the American Public School has operated a program to perpetuate the knowledge, the skills and the values of our democratic culture. It has trained the pupils to memorize, to point out relationships and to realize and accept the concepts of our culture. All of these abilites are in the nature of convergent thinking processes; that is to gather information that will arrive at a likely or correct answer.

More recently it has been recognized that the educative process should focus also on the process of divergent thinking, where concepts or understandings are put to new and more creative uses--a type of thinking that allows for individuality in learning, for flexibility in thinking, and for diversity in ways of doing and feeling.

Such abilities can only be taught by teachers who possess a flexible personality, who are respectful of individual differences, and who have a dedication to the development of individuals as unique and valuable to our society. Creativity implies qualities of unique nature.

We must turn our attention to individuals whose creative abilities have been developed to the extent that they can tap their past experiences and put these selected experiences together into new patterns of leadership, new ideas for living, and new products for the benefit of all mankind. To develop such individuals for our future requires the kinds of teachers that can break the ties of preconcieved "structured" limits which have operated historically in our educational system, and be able to lead children to discover "truth" for themselves and to use it for the good of all.

Recent educational research is replete with evidence which demonstrates that children and college students learn more effectively and retain longer what they learn through problem-centered creative learning processess. Unless we develop a learning program for out college students which embodies these principles, we cannot hope to have them work with their students in this manner.

This means that we must stop lecturing to students about how they should perform and start practicing in our setting what we want them to do in their teaching-learning situations. We must demonstrate by example instead of teaching by telling the theories of learning. We must get rid of the clock and the calendar as measures of competence and be concerned with proficiency; the measure must be what the student can do in a given situation. Future generations will be as the present one is, frustrated by freedom and change, unless they learn to cope with change. It shall be the intent of this teacher education program to prepare professional educators who have used levels of creativity to prepare themselves for this role, and who are capable and dedicated to the development of these characteristics in the future adults of this nation.

We believe that teacher education can and should be a viable discipline whose major content is concerned primarily with human growth and development and the components that are distinctly "human. This discipline must evolve from a cogent body of theory which is demonstrably sound, and teaching must not continue to be thought of in terms of an empirically derived trade. We reiterate, college students must live out these kinds of experiences if they are to become professional educators whose skills, knowledge, and practices are appropriate to the last third of the twentieth and on into the twenty-first century.

COMPONENTS OF PROGRAM

General Education (six semester hour proficiency equivalent)	Professional	Experiences
1. Communications 2. Life Science	1. Human Growth & Dev. (12 hr. equivalent)	1. One to one relationship, 2 hr. (80 clock hr.-equiv)

3. Physical Science
4. Mathematics
5. Social Science
6. American History & Government
7. Humanities
8. Geography & State History
9. Physical Education, Camping & Recreation
10. Subject Matter Area, 12 hr. equivalent

2. Learning Theory & Model Making (8 hr. equiv.)
3. Global Curr. Theory & Model Making (8 hr. equiv.)
4. Reading Instr. Theory (3 hr. equiv.)
5. Arithmetic Instr. Theory (3 hr. equiv.)
6. Soc. Studies Instr. Theory (3 hr. equiv.)
7. Language Arts Instr. Theory (3 hr. equiv.)
8. Science Instr. Theory (3 hr. equiv.)
9. Independent Project

2. Small Group, 3 hr. micro teaching (90 clock hr.equiv.)
3. Classrrom Teaching, 20 hr. equiv. (600 clock hrs.)
4. Counseling Lower Classmen, 10 hr. equiv. (300 clock hrs.)
5. Tutorial Rel., 10hr. equiv. (300 clock hrs.)

Each student with graduate counselor "pert" his own program. --- See illustration A

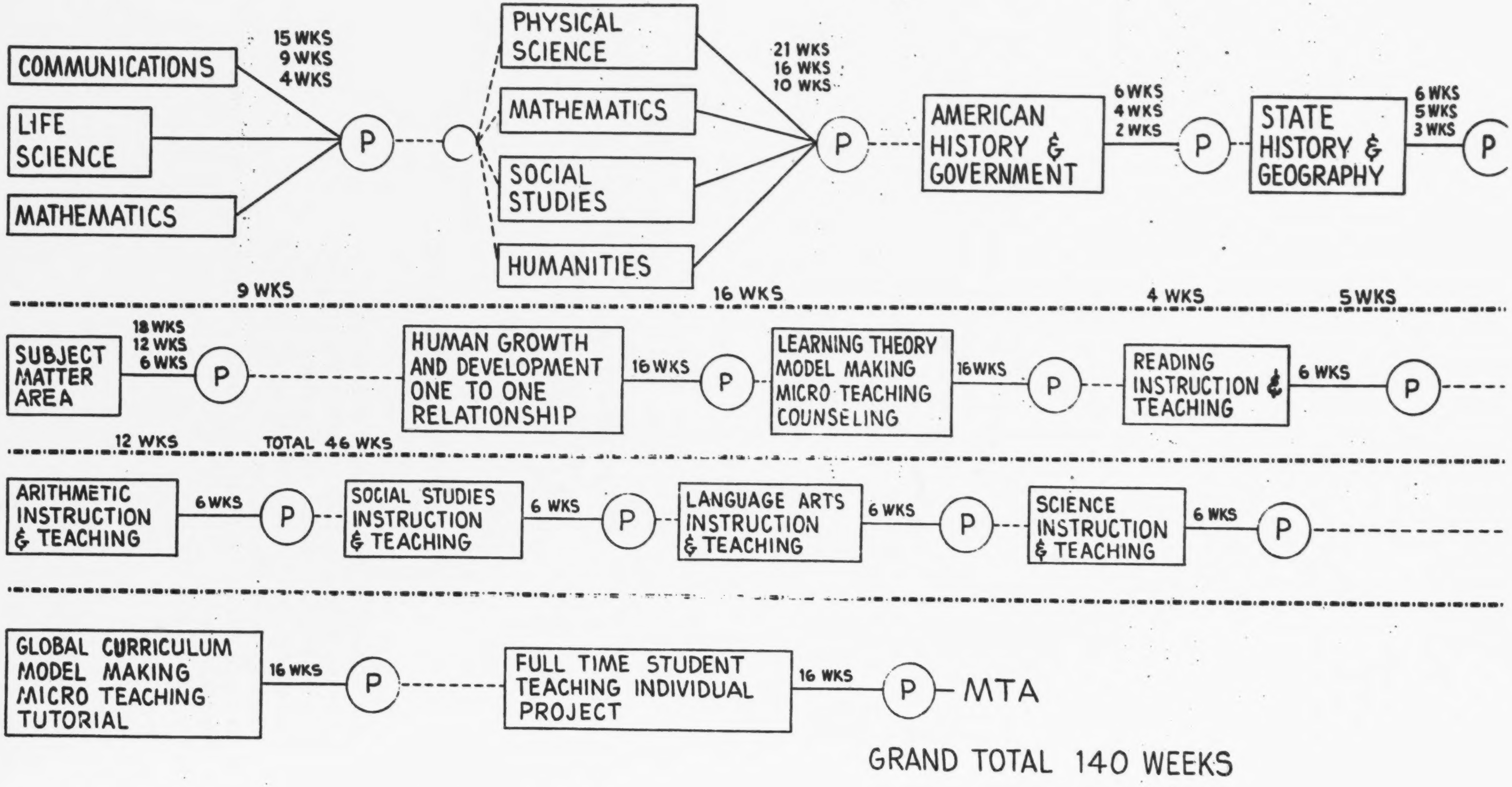
All general education components with exception of Physical Education available on demand by technological devices.

Professional Components and Experience
Components scheduled concurrently in:
1. Public Schools
2. Private learning Systems Center
3. Public School Learning Resource Center
4. Private Schools
5. Assignment by regional cooperative educational laboratories
    a. MCREL
    b. SCREL
    c. SWCEL

PROFESSIONAL STAFF REQUIRED
(for each 100 students)

1	Human Growth & Development Specialist
1	Learning Theory & Model Making Specialist
2 or 3	Teaching Area & Model Making Specialists
1	Global Curriculum Coordinator & Model Maker
1	Technological Specialist
10 - 15	Graduate Students (apart of their professional requirement)
6 - 7	Specialists
10 - 15	Graduate Students

ILLUSTRATION A - EXAMPLE OF STUDENTS INDIVIDUAL PROGRAM


COMMUNICATIONS
LIFE SCIENCE
MATHEMATICS
15 WKS
9 WKS
4 WKS
P
PHYSICAL SCIENCE
MATHEMATICS
SOCIAL STUDIES
HUMANITIES
21 WKS
16 WKS
10 WKS
P
AMERICAN HISTORY & GOVERNMENT
6 WKS
4 WKS
2 WKS
P
STATE HISTORY & GEOGRAPHY
6 WKS
5 WKS
3 WKS
P
9 WKS
16 WKS
4 WKS
5 WKS
SUBJECT MATTER AREA
18 WKS
12 WKS
6 WKS
P
HUMAN GROWTH AND DEVELOPMENT ONE TO ONE RELATIONSHIP
16 WKS
P
LEARNING THEORY MODEL MAKING MICRO TEACHING COUNSELING
16 WKS
P
READING INSTRUCTION & TEACHING
6 WKS
P
12 WKS
TOTAL 46 WKS
ARITHMETIC INSTRUCTION & TEACHING
6 WKS
P
SOCIAL STUDIES INSTRUCTION & TEACHING
6 WKS
P
LANGUAGE ARTS INSTRUCTION & TEACHING
6 WKS
P
SCIENCE INSTRUCTION & TEACHING
6 WKS
P
GLOBAL CURRICULUM MODEL MAKING MICRO TEACHING TUTORIAL
16 WKS
P
FULL TIME STUDENT TEACHING INDIVIDUAL PROJECT
16 WKS
P
MTA
GRAND TOTAL 140 WEEKS

If a staff of seven persons were available for each 100 students in the program, a desired distribution of competencies would include the following:

Human Growth and Development Specialist -
Preferably a person who was a product of an interdisciplinary program with depth in Psychology, sociology, and some depth in Philosophy.

Learning Theory and Model Making Specialist -
Theoretical and applied Psychology, some experience with students, experimentally oriented.

Teaching Area and Model Making Specialists -
Experienced in teaching both elementary and college students. Subject matter depth and current in curricular developments. Experimentally oriented.

Technological Specialist -
Thoroughly familiar with technological teaching devices and systems approach to learning.

Graduate Students -
Preparing to be elementary or college teachers. Students in Education, Psychology, Sociology, or technological learning systems. Required to go through system on a scaled basis prior to counseling with students. Would maintain a counseling relationship with 7 to 10 beginning students for a semester.

Narrative:

The University proposes to establish a learning resources center where the funded knowledge of the culture which is deemed appropriate for the General Education of college students through their second year in higher education is made available through technological devices. These would include Books, Audio-tape, Video-tape, Films, Film-strips, Slides, Film-loops, Programmed Materials, Computerized experiences, Analog computer teaching devices, Laboratory equipment, etc. College students could establish their proficiency through examination in any or all of the area deemed appropriate for their curricular needs. Students in teacher preparation would be required to establish their proficiency in this manner from one-fourth to one-third of their general education.

Technical assistance would be provided at all times for students using the learning resources center. In addition, subject-matter area counselors would be available to guide the students to appropriate experiences in any area that they wished to pursue. These experiences would be in the form of small discussion groups or individual conferences. The effect desired would be to produce a non-graded, self-motivating, and self-determined set of learning experiences which would make possible a relatively independent quest for knowledge. This would take into account previous educational, vocational, and cultural experiences of each student. It would insure a more exact level of performance before the student was certified as the possessor of an adequate foundation in the acculturation process. The result should be a genuine non-graded college experience. The professional education students would be required to obtain a part of Their General Education in this manner, so that they could experience the non-graded curriculum in a manner similar to that which we would expect them to present learning experiences to their students in the elementary schools.

When a student seeks admission to the program, he will be evaluated against the achievement profile established for graduates of the program. This profile may consist of one hundred plus areas and his profile will be stored by a computer. As he moves his proficiency above the required profile in any area, this will be added to his profile data so that he can receive a print-out of his individual profile as often as it is needed. He will be counseled by a staff member or members to determine the point of entry into the program and the appropriate area or areas to pursue initially. If the student meets the proficiency profile in any of the required areas, he would not be asked to do additional work in these areas. A student might be excused from all of the general education areas on this basis. A transfer student would be accepted on the basis of demonstration of proficiency, not on a transcriptual basis.

It is envisioned that tuition would be charged on a semester basis and minimum amounts of accomplishment would be necessary for the student to remain in good standing. There would probably be a fixed fee for the initial proficiency evaluation and profiling of the student. This evaluation would have utility for a wide range of applications whether or not the student pursued the program after being profiled. Graduate students and staff would be assigned seven to ten of the new students and be required to maintain a continuing relationship with them.

At the earliest opportunity the student would meet for a period of time approximating a semester for regularly scheduled discussions, explorations, seminars, and sessions aimed toward helping him develop a conceptual framework for understanding, predicting, and directing human growth and development. Concurrently he would be placed in a one-to-one relationship with a pre-school child on a daily basis (5 days a week) for at least one hour. This experience would be used as a basis for demonstrating, through exposition of a case study, the students' mastery of the area.

For the next 16 weeks the student would be placed with small groups of students in remedial micro-teaching situations which would be videotaped. The Standard group under Dwight Allen has demonstrated the efficacy of this technique. Experiementation would be encouraged and expected so the student could develop appropriate teaching styles. We would be as much concerned with developing sensitivity in the affectual domain of child-adult interaction as with proficiency in structuring learning situations.

Following the micro-teaching and counseling block of work the student would work with subject matter area teaching specialists for a period of 30 weeks. The general design would be for the student to spend three weeks in seminars concerned with methodology in a specific area such as reading and then go into an elementary classroom for the next three weeks to work specifically in this area. During this time he would be supervised both by a critic teacher and a college staff member. In this manner he would complete 15 weeks of specific area instruction and 15 weeks of supervised teaching. At this point, upon successful performance in each area he could be awarded the baccalaureate degree. At any point if the student did not develop the desired proficiency, he could be recycled through supplementary experiences until he either left the program or developed the required proficiency.

For those students who were capable and desired to complete a master's degree, two additional 16 week blocks of experiences would be available. They would spend a part of their time in seminars developing models of global curricular experiences which would be problem centered and consistent with various levels of human growth and development. At the same time they would be counseling with beginning students in the college program and developing tutorial relationships with small groups of college students.

The final 16 weeks would be spent in full time intern teaching, preferably in culturally deprived areas throughout the southwest. These might be located through cooperation with Regional Educational Laboratories. Arrangements would be made to supply their expenses. They would also be required to prepare an individual paper which would set forth in detail their conceptual framework for analysis and understanding of human growth and development, their preferred strategies for teaching and learning, and a systematic analysis of their learning experiences in an evaluative framework. These papers would be used as the organizing elements for an intensive seminar as a concluding experience. Again, the student would be recommended for the appropriate graduate degree if he had demonstrated a desired level of proficiency or he would be recycled if he did not.

In-service Training:

An integral part of the learning systems would be the in-service training of public school contract teachers. Those teachers working with the interns in this program would be enrolled at the University as a part of the training team. They would be required to provide the staff at the University with a 30-45 minute video-tape of their teaching taped when they wished, once every two weeks. Their performance on these tapes would be critized by the staff and the students in the program. Critical sequences on these tapes which would yield the most insight into child development and strategies for teaching would be dubbed on master tapes. Once every two weeks the in-service teachers would meet in a continuing seminar to discuss the contents of the master tapes and to develop additional models and strategies for teaching.

The graduate students who were interning would also participate in these seminars. Credit toward advanced degrees would be given to the supervising teachers as they demonstrated their proficiency. The video-taping units would be provided and transported from site to site by the University. The master tapes would be utilized by the in-service seminars and would, in addition, provide the undergraduates with materials to help them construct a conceptual framework for understanding child development and the raw materials for building a discipline of education.

We are convinced that professional educators produced by this learning systems approach would possess the knowledge and the skill which would mark them as members of a profession. By this we mean that others who possessed the same length of training in other disciplines would not be able to perform at the same level of competence. Our product would possess the demonstrated ability that would be unique to a profession. A lay observer could tell the difference between their classroom performance and those who had not been so educated, and readily observe their superiority.

University of Kentucky. Fred Edmonds.

Introduction

The intent of this proposal is to outline the essential components which might later be detailed and incorporated into an innovative model program for the preparation of elementary school teachers. In a major sense, the proposal represents a series of hypotheses, each as yet untested in toto, but each promising enough to be pursued with optimism through further development, implementation and assessment. Likewise each hypothesis subsumes a world of reality where radical and revolutionary change is accomplished only through violent and sometimes harsh measures, and, therefore, is counter to the desires and stability of those involved. These realities, then, must be recognized and any change efforts must be tempered with understanding and designed to elicit the support of those persons whose stable world may be threatened with disruption. With these facts in mind, this proposal was developed with one eye on the urgent necessity for bringing drastic changes in teacher education while the other eye was focused out into the future on the difficulties sure to be confronted when such changes are ultimately introduced and implemented.

While not the immediate task of this proposal, nevertheless, should the University of Kentucky be assigned the function of completing the model, serious and concentrated effort would be made to append to the model program some viable strategies for the implementation of that model. An educational package, particularly if it is truly change oriented, should be accompanied by meaningful suggestions for its proper introduction and use. It is relatively easy to describe what the present conditions are, and only a bit more difficult to describe an ideal or what should be. Vastly more difficult is the task of developing and carrying out the strategies of getting from here to there.

This proposal is presented in three major sections: (1) A rationale which gives some notion about the philosophic mooring for the proposed model. (2) A section identifying the major elements or components which would serve as guidelines. (3) A section outlining the planning and development procedures whereby the model program would be developed. Most of the substance of these sections is sketched, a condition brought about in part because of our understanding of the nature of this proposal and in part because of our inability, at this time, to elaborate further.

Rationale

The development of a model program of teacher education must occur in terms of a theoretical framework; however, this framework must be constructed in recognition of the realities which prevail in both teacher preparing institutions and the schools in which the teacher will be employed. Both environments have been institutionalized; i.e., they have purposes and operating procedures which have developed in a context of need and tradition so as to make them self-perpetuating organizations with built-in resistance to radical change. Therefore, any viable theoretical model program, if it is to eventuate in implementation, must not ignore these realities even though its prime purpose may be to modify them.

Elementary Schools are Characterized by Change

The beginning teacher is quite likely to find himself in an environment in which change is the dominant characteristic. Most such beginners are totally unprepared for the instability of such an environment, having "learned" in a preservice preparation program those things which would presuppose a relatively stable, secure school position in which certain predetermined tasks would be performed with recurring frequency. This condition, of course, is rapidly becoming non-existent. The intrusion of curricular changes in mathematics, science, linguistics, et cetera, and the accelerated development of technological instructional aids have forced the school to become change oriented. There is ample evidence to predict that the present tempo of change will increase markedly in the future.

The Assigned Tasks of Elementary Teachers are Unmanageable and Overwhelming

The image of a single teacher in a self-contained classroom assigned to do all and be all for a group of twenty-five or thirty pupils has never been very helpful in elementary programming and is less relevant and realistic today than ever before. Yet the nation's elementary school classrooms are staffed with thousands of teachers who were prepared for and function in relationship to such an image. The multiplicity of responsibilities delegated to such a teacher can only result in partial fulfillment of some of these responsibilities and in the creation of psychological problems for the sincere and dedicated teacher.

There is evidence to suggest that this image of the elementary teacher is undergoing modification. Teachers' aides, paraprofessionals, guidance counselors, teaching teams, and innumerable redesigned organizational arrangements are being used in overt recognition that teaching is a complex task. These innovative efforts seek the reduction of responsibilities to a single teacher that are manageable and appropriate to the competency of that person.

The Personalization of Instruction for the Individual Pupil is a Primary Goal of Teaching

Mass education, while a necessity in our society, must continuously attempt to resolve the problems of reaching the individual with meaningful and appropriate learning opprotunities. Though this has been a goal long sought in school programing, many new and exciting tools are available today to help in this effort. Until quite recently the major instructional aids were the textbooks, a small arsenal of audio-visual media, and a limited range of other printed and graphic materials. Burgeoning technological developments have expanded this resource bank until an astounding array of resources are now in evidence in the typical school.

Today's elementary schools are employing these technological devices with increasing success. Tomorrow's schools will surely make more extensive use of such aids to personalize instructional opportunities. Machines, for example, may be able to diagnose pupils' academic problems, provide corrective and remedial assistance, stimulate pupils into exploring new learning frontiers, and generally perform many of the tasks that currently are reserved for the human teacher.

Burgeoning Knowledge will Necessitate a Restructuring of Curriculum Goals Toward Modes of Inquiry and Problem Solving Rather than the Accumulation of Knowledge Per Se

The trend toward instructional goals which lead to problem solving competency is well established in many elementary schools. Not as evident, but growing, is an awareness that interdisciplinary knowledge is too vast and metamorphic to use as a curriculum base, that such knowledge has to be screened and selected carefully in terms of some other taxonomy if it is to become viable and useful in curriculum development. The "other taxonomy" may well be pegged around the peculiar modes of inquiry that each discipline must generate internally as a requisite for being a discipline. "New mathematic", as a case in point, is one beginning wedge in uncovering the "why" in mathematics inquiry as opposed to the "how" of traditional mathematics.

Other disciplines--sciences, communications, social sciences, et cetera--have characteristic modes if inquiry, ways of searching for and ordering new knowledge. These modes and taxonomies are much more stable and permanent than the bits and pieces of data they discover and pattern; therefore they would seem to provide a firmer base for curriculum development.

The Roles of the Teacher Call for a Mix of Practical Skills and Theoretical Understandings

Countless teachers survive because they have acquired the skills of human relations, ability to follow a textbook or curriculum guide with appropriate substitution of gimmicks and ad libs, and similar practical ploys without having to understand the theoretical foundations of these actions. A suitable preparation program for this category of performance should not require an extended or extensive period of time. On the other hand, if teaching is to become oriented toward helping pupils learn various methods of inquiry and how to interrelate knowledge into constructs for problem solving, then the teacher must have some understanding of such theoretical configuration and methods himself. This, of course, necessitates a different order of preparation: intensive, unending, and selective.

The Elementary School of the Future Will Be Characterized by Different Goals, Curricula, and Staffing Patterns

Some trends seem to be developing out of the current efforts to accelerate improvements in the nation's elementary schools. While these trends are rather infantile and weak, they can be identified. In summary, they are:

1. The purposes of education are becoming more oriented toward (a) citizen ship responsibilities and rights for all citizens regardless of race, creed, color or economic environment; (b) less ingestion of factual information for immediate recall and more emphasis upon the processes of accumulating data for immediate use in problem solving; (c) more emphasis upon the "why" and "how" of phenomena rather than gathering information about these phenomena.

2. Curricula are being designed that are less scope and sequence dominated and tend toward flexibility in congruence with the growth and learning patterns of the individual pupil.
3. School organization is coming to be recognized as the servant of curriculum development rather than the master. Flexible grouping patterns, for example, are destroying the traditional 30:1 pupil-teacher ratio.
4. Experimentation and research are receiving increasing emphasis. School budgets are beginning to reflect an identified need to employ more scientific approaches in developing new curricula and in evaluating the success or failure of operational programs.
5. Technological aids are being employed more wisely in facilitating learning through an increasing range of neurological approaches.
6. Staff deployment and use are increasingly being projected on the delineation of tasks to be performed. Teacher aides and other para-professionals are being assigned to perform sub-professional and routine duties.
7. In-service staff growth is being planned and implemented in more deliberate and systematic ways.

Assumptions About Teacher Education

Teacher Preparation Programs Should Provide For Differentiated Task Assignments

Though this assumption has been accepted operationally at the level of differentiating teaching positions--classroom teacher, art teacher, music teacher, etc.,-- a kind of uniform competence for each position has been a common goal. More specifically, a high order of competence has been required in all the generic tasks of any particular position. If, for example, a person was to become a classroom teacher, he had to demonstrate proficiency in terms of some taxonomy of the job; this meant he had to show his competence in, say, explaining, informing, structuring, clarifying, evaluating, diagnosing, stimulating, etc. The fact that he became quite expert in only one or two of these tasks was overlooked as competence in all was the goal--unattainable as it were. If, however, he were to function as a teaching team member, perhaps these one or two special competencies would be just what would be essential, with other team members performing their specialties, each complementing the other team members.

The idea of teacher specialities, both in and within positions, is an important one for teacher education. Team instruction is sure to accelerate and its success will depend, in part, upon how well individual talents are nurtured in differentiated preparation programs.

Teacher Preparation Programs Should Emphasize and Reflect the Experimental Nature of the Teaching Act

The social setting in which teaching takes place is changing so rapidly and the variables so numerous and complex that the teaching act must be perceived as experimental. Every facet of teaching, from objectives through content, strategies, and assessment of outcomes, is and must be conceptualized as experimental. Overtly or sub-consciously, the teacher, in effect, says, "If I do 'X' things with 'Y' children under 'Z' conditions, then 'A' things will result". The hypothesis is constant, the outcome is dependent upon the teacher's competency in conceptualizing, understanding, designing strategies, and performing the acts necessary to make the experiment a success. If the desired outcome is not attained, then the teacher must analyse the difficulty and begin again.

Teacher education programs must be designed in acceptance of teaching as experimentation. The design must reflect this concept in every aspect of program operation so that the student not only learns about but experiences, day by day in his preservice program, the concept in operation.

Teacher Education Programs Should Provide Personalized Programs for Individual Students

Teaching at its highest level is significantly an intellectual enterprise. While all teachers need experiences to help them become familiar with the essential ideas and modes of inquiry of the various disciplines, including education, the range of competence derived from such experiences will vary with the individual. Some will profit more than others even if the experiences are geared to the individual. Therefore, the selection and retention processes in teacher education should take into account the human relationship and skill potential as well as the intellectual qualities of prospective teachers. Specially designed, individualized programs should be based upon a range of desirable qualities, and when the person seeks employment his competence in each of these should be communicated to the employing authorities.

Learning experiences for students should not be restricted to a collection of college courses but should be designed to: (a) acquaint the student with the realities of teaching, (b) help him conceptualize models of behavior to improve the status of present reality, and (c) provide him with the skills and attitudes necessary to implement productive teaching activities.

Teacher Education Programs Should Recognize the Realities of the Profession

The drop-out rate of teachers is very high; nearly half of those prepared to teach are not teaching two years after graduation and half of the total teaching force needs to be replaced every five years. Marriage, death, disability, dissatisfaction and retirement take a huge toll of the nation's teachers. This means that we must use the "overall" approach in recruiting and preparing enough teachers. This also means that ways must be developed to hold qualified teachers who might, because of misplacement and dissatisfaction, otherwise be lost to the profession. The investment in preparing a single teacher is immense and, therefore, more careful recruitment, more suitable and meaningful preparation programs, and more assistance and guidance in teacher placement and continuing education must be provided.

Perhaps the prime reason for teachers leaving the profession is their inability to achieve personal satisfaction and success. Because of a common personification of the "master teacher" as an ideal, teachers too often find themselves in circumstances where they, their superiors, and possibly their patrons perceive that they fall far short of this ideal. But, of course, some teachers are more capable of working with certain personality types than others, some more effective with children from certain family environments, and some are more successful in certain modes of teaching. Teacher education programs should strengthen these differences rather than try to prepare a universal teacher capable of all things in all situations.

Prospective teachers should be made aware of the necessity for the continued growth as a professional. Somehow, perhaps for personal aggrandizement, colleges seem to leave the prospective teacher with a rather pronounced feeling that their preservice program is a terminal effort. This precept should be destroyed quickly and replaced by the concept of continuing preparation throughout the teacher's career. Then when new skills or competencies are needed no one has to be embarrassed or resort to subterfuge, rather the teacher can embark upon the task of learning those skills or acquiring those competencies.

Teacher Education Is the Responsibility of Many Institutions and Agencies

Teacher education is the cooperative responsibility of the colleges which prepare teachers preservice, the state departments of education, various professional organizations, and local school districts. There is today a real urgency which demands that we re-focus our attention to the totality of teacher education plan more wisely in terms of the most appropriate experiences to be provided pre- and in-service, and coordinate our efforts to promote the continuous development of teachers from recruitment to the end of their professional careers. Perhaps inadvertently, preservice programs have attempted to do more for the teacher than is feasible or practical simply because of a belief that other agencies expect no less. Perhaps, preservice programs have preempted some aspects of preparation which belong more appropriately to the school or district. At least there is a need for a cooperative examination of this whole question.

Directional Goals

The model of a teacher education program is, admittedly, underdeveloped (a task to be tended during the planning phase). This does not mean to say, however, that the directional goals for such a model have not been determined. Though it is recognized that the strategy of wholesale model implementation is a deliberate departure from the typical strategies associated with developmental change, it is also the intention of this proposal to describe this model program in such a way as to enable certain of its components to be implemented separately should this be come necessary. In either case the model should have internal consistency among and between its various components, and this necessitates the projection of directional goals which would serve as guidelines for the development of the entire model. Thus the broad outline of the model that follows, and the eventual, specific, more detailed model to be developed during the planning phase have been projected in terms of the following directional goals:

1. The model would seek the development of personalized preparation programs for individual students preparing to become elementary teachers.
2. The model would outline more effective instructional relationships among general education, behavioral, and professional disciplines to insure that the content and methodology of these disciplines have greater relevancy and application to teacher education.
3. The model would include conceptual designs for the implementation of preparation programs which would provide for:
   a. the pressing need to redefine the functions and responsibilities of the elementary teacher so that more appropriate and manageable roles can be developed.
   b. the need to develop multi-teacher staffing patterns for the elementary school which would recognize different levels and categories of instructional tasks and prepare teachers to perform these specific tasks.
   c. the need to prepare teachers to function in the climate of change now emerging as a dominant characteristic of the nation's elementary schools.
   d. the need to develop in the teacher education student the attitudes and skills of conceptualizing the teaching act as essentially an experimental venture.
   e. the need to increase the emphasis upon learning theory and the application of such theory in the realities of school environments.
   f. the need to emphasize inductive approaches to learning in teacher education, requiring a different order of learning experiences and different roles for the college instructor.
   g. the need to provide students with opportunities to develop conceptual constructs of learning systems rather than continuing to emphasize the purely informational aspects of teacher education.

4. The model would include the development of experimental "learning systems" constructs to order and interrelate the complex array of learning components into conceptual frameworks with applicability both in teacher education and school classroom instruction. (Accelerating technological developments will force this to be accomplished.)

5. The model would seek to eliminate the barriers between pre- and in-service teacher education and develop a continuing teacher education concept and program.

6. The model would provide an internal systems analysis approach to evaluation (PERTing) of both student and preparation program, with pre-determined points for aborting and/or modifying the various procedures of the preparation program.

Program Content

This component of the model program is the most difficult of all components to project. State certification requirements and University requirements mandate minimum courses and course hours in a traditional and typical manner found elsewhere in the nation. While assurances have been given by responsible authorities in both domains, certain difficulties are sure to arise when a new concept of teacher education "content" is presented. We believe this would be the case in any similar institution, and, therefore, would develop a model of content that could be expected to be implemented. (This is not to preface the outline of a model simply on the fact that it could be implemented but to underscore the difficulty. Quite the converse is true: we believe we have extrapolated the beginning of such a model on firm, reasonable, and meaningful bases, thus alleviating some of the problems which might conceivably confront this college or other similar colleges.)

Currently, the University of Kentucky and the College of Education require that the student preparing to teach in an elementary school take courses in three areas: General Studies, Special Studies, and Professional Studies. The College of Education has direct control over the latter two areas, and requires the student to amass a minimum total of 85 credit hours in these, with additional electives of nine hours in education for a total of 94 hours. General Studies in the College of Arts and Sciences require 36 credit hours.

This means that the College of Education controls about 72 per cent of the course work required of elementary education students, a percentage not unlike that in other university colleges or schools of education.

Because the General Studies, or general education, area is typical in other institutions and because the value of a general, liberal education background is unquestionably necessary for all teachers, this component would be stabilized in the model teacher education program, but with some fundamental modifications. To elaborate on both the professional education (Professional Studies and Special Studies at the University of Kentucky) and general education components these will be treated separately, though they are obvious parts of a whole.

General Education Content

The structures of knowledge on the disciplines which normally comprise "general education", while of concern to teachers of teachers are, nevertheless, a part of each such discipline and, for purposes of the immediate model program, beyond revision. Teacher educators, however, should be concerned deeply with the transmittal (teaching) of these structures to prospective teachers. Each such discipline has its own unique conceptual structure and modes of inquiry for searching for and ordering new knowledge, and it is precisely on these constructs that the proposed model program would focus.

Whereas most interdisciplinary consortia are concerned primarily with teaching information already ordered and structured in each discipline, the proposed model program would leave the informational aspect largely to the discretion of each discipline and would, instead, try to develop cooperatively ways of assuring that the prospective teacher would understand and have some competency in using the modes of inquiry and structuring peculiar to that discipline. Thus the desired outcomes would be: (1) disciplinary information to be taught by each discipline, and (2) constructs, modes of inquiry, and the application of both information and construct to be tended by joint planning and implementation by both the discipline specialists and educationists.

While this approach is oversimplified and understated in this proposal, it should convey the intent of both delineating the function of general education content and combining such content with professional education in a model program to prepare elementary teachers. Further elaboration in this vein would be accomplished during the anticipated planning period.

Professional Studies Content Preservice

What has been termed the "professional studies" component of teacher education would be reexamined and its focus altered considerably in the proposed model program. Whereas the purposes undergirding the current professional studies component have been identified in such directions as helping the student become knowlegeable about learning theory, teaching methodology, and subject content development, plus helping him develop certain attitudes about people, teaching, and himself, this model program would also be aimed toward helping him conceptualize logical, meaningful theoretical structures of models or teaching.

More specifically, certain generic content areas would be described and used as bases for the development of learning experiences, formal (coursework) and informal (though deliberate and planned), to be provided for each student. Foreseen now, but subject to ultimate revision, these content categories are:

1. Knowledge and understanding of the school as a social institution and its function in society.
2. Knowledge and understanding of elementary age children, human growth characteristics, and learning processes.
3. Knowledge and understanding of elementary school curricula, including curriculum development processes, curriculum resources, curriculum goals, and the relationship of curricula to the function of the school in society.
4. Knowledge and understanding of "self" and attitudes related to self-acceptance and acceptance of others.
5. Skill in communication effectively with individuals and groups through oral, written and behavioral processes.
6. Skill in "group processes," particularly those processes which relate to working with children in problem solving.
7. Skill in conceptualizing constructs which recognize and interrelate learning objectives, pupil characteristics, teaching methods, learning resources, and other elements of learning systems.

This is not to suggest that all students would be provided equal opportunities to learn in all these content areas. Some students, because of previous experience, would enter the program with greater knowledge and/or skill in one or more of the areas and, therefore, would need less programing in these directions. Likewise, some would complete their preservice program with less competence in some areas than in others--a natural consequence--and these deficiences would, where possible, be tended during the in-service phase of their professional growth. But this suggest organization, a component of the model program to be outlined in the following sections of this proposal. All that is intended here is to indicate that the content areas would be personalized for the individual student in terms of his need and level of competence.

The first six of the content categories listed above are not unknown nor are they novel in teacher education. The seventh, however, represents a departure from typical programing in the degree of emphasis to be accorded it in the proposed model program. Therefore, the rationale and logic for its inclusion should be described.

As stated in the Directional Goals, "The model would include the development of experimental 'learning systems' constructs to order and interrelate the complex array of learning components into conceptual frameworks" with applicability both in teacher education and school classroom instruction." Because beginning teachers are employed in a wide variety of school and social settings, there is no certain way of predicting what kind of setting in which a beginner might be employed. The tendency in the past has been to rely upon a kind of universality, or common core, of teacher education content and trust that the beginning teacher would somehow be able to adapt to the conditions in which he would find himself. To be sure, this task is logical and has proved its value, though the time has come to strengthen it through planning and modification.

There is an abundance of evidence to suggest that teacher education programs are not succeeding in helping students conceptualize the school learning environment in toto. Somehow, in discreet compartments, the student comes to recognize that a school is made up of learners, teachers, buildings, materials, et cetera, and acquires understanding about and skills using these components, but any change in these components is disturbing and upsetting. They are exhorted to "individualize instruction" and are assigned thirty diverse children and expected to be all and do all for them. They adapt to this situation either with outright frustration or become resigned to mediocre performance.

As an important part of teacher education curriculum content, the model program would attempt to deliberately teach students how to order and interrelate learning components into meaningful and useful patterns or constructs. Just as other disciplines have characteristic modes of inquiry and ways of structuring new knowledge, this would be an overt effort to identify, develop, and transmit modes of inquiry and structuring in the discipline of education.

Borrowing from industry, the model program would use the "systems analysis" process to construct models or constructs of "learning systems" which would: (1) identify and interrelate all possible major components of a learning system; (2) allow for the inclusion of new elements or the absence of some; and (3) describe productive roles for the teacher as a component of that system.

Conceivably, a "learning system" taxonomy would interrelate such components as learning theory, educational objectives, subject matter content (modes of inquiry, et cetera from other related disciplines), technological resource use, and, perhaps, the two major functions of the teacher: management and resource.

If a college had such constructs to use as guides in developing appropriate learning opportunities for students in education, as well as providing demonstration models for trachers to use, perhaps more personalized instruction at both levels would be feasible. The presence of such model constructs would not, of course, negate the necessity for providing information about education, developing skills in using instructional media, et cetera, but would help to provide frameworks for relating these kinds of information and skills in consistent and usable patterns.

The purpose of this approach is not to lead students into following a rigid model developed and demonstrated by college professors, but to help each such student gain insights and competence in developing his own models. After all the raison d'etre of education as a discipline is to give meaning and utility to discreet bits and pieces of knowledge gained from the study of education, from other disciplines, and from experiencing.

The synthesis of understandings about teaching into models, configurations, or learning systems upon which the individual would predicate his behavior can best be accomplished inductively. That is, the individual must be helped to take the kernels abstracted from experiencing and form constructs of larger meanings which can be interrelated into useful frameworks.

Two fundamental requirements are necessary for this process to eventuate in productivity: (1) The individual must be taught the skills of analyzing his experiences for the abstraction of pertinent meanings and the skills of arranging these meanings into usable constructs. (2) The individual must have appropriate opportunities for experiencing in environments which are potentially rich in meanings.

Teacher education program content would be developed to meet both of these requirements. The provision of such content, however, would necessitate some major shifting of priorities in programing. Typically, current programs are operated primarily on the basis of deductive structuring. That is, the large concepts are identified and described by the instructor and then opportunities for a variety of clarifying and elaborating experiences are provided the student. Course outlines, for example, usually describe the major concepts to be explored and leave little emphasis to the identification and synthesis of other, non-identified concepts. Perhaps the time factor (only four or five years in preservice programing) has been a prime influence in the use of this approach in teacher education. As one collegue put it, "There is so little time and so much for the student to learn, we just cannot afford to have him miss any of the important learnings". Substantial research, however, would indicate that people learn best when they are given: (1) freedom to explore their own interests and develop their own values, (2) assistance and support in becoming responsible for their own behavior, (3) opportunities to learn those things which have meaning and utility, and (4) opportunities to discover for themselves meanings in experiences.

The model program would extend the length of preparation of some students into their on-the-job practice (in-service), and this would provide additional time for both student and college staff to function.

Professional Studies Content In-Service

Any projected model for teacher education programing, if adequate, must contain the component usually termed in-service or continuing education. The inclusion of this component in the model, however, must be accomplished in a deliberate manner, evidencing complete awareness of the realities which would inevitably circumscribe and permeate the application of the model in actual implementation. Obviously, the education of a teacher is a complex task, requiring more time and resources than can be provided in four or five years on a college campus. Just as obvious, a model program which would include in-service education would need to be refined and restricted to accommodate the conditions which such a tack would confront. With this in mind, the proposed model would be developed within certain prescribed limitations:

1. It is doubtful if a typical college could maintain close interaction with all its preservice students as they become practicing teachers; therefore, the model would have to provide for a restriction of in-service program to teachers on such bases as recency of completion of preservice program, accessibility, students' needs, and staff resources.
2. The college function in in-service education would be defined specifically in cooperation with and in deference to the function of the school or district in which the teacher is employed.
3. The program, in all its aspects (theory, purposes, implementation), would continue to be experimental with research providing cues for needed modification.

The Essential Components of the Model

While all aspects of the model for the in-service phase of the proposed teacher education program are as yet undeveloped, the theoretical mooring and essential components of the model can be outlined.

I. The model would be conceptualized in terms of a curriculum for in-service teacher education. The series of planned learning opportunities a school provides for pupils is termed the curriculum of that school. These learning opportunities are deliberately conceived in relation to the purposes held by that school. Likewise, the components of these opportunities--the curriculum content--are structured in terms of sequence, pupil maturity, materials, equipment, and scope. Surrounding this matrix is an organizational configuration which groups pupils, provides a teacher or teachers, insures the availability of space, and provides a method of evaluating the consequences of pupil participation in or exposure to the learning opportunities. The reduction of the element of chance is thus a major emphasis and characteristic of a curriculum. Whether this insurance against chance is sought in rigid inflexible, lock-step operational procedures or whether a considerable degree of flexibility is operative, a curriculum is never-the-less always present. Too much is at stake to neglect to plan for the education of our youth.

What is described above in terms of curriculum for pupils is also representative of the curriculum in colleges and universities which operate programs for the pre-service education of teachers and other professional personnel. In every instance, a curriculum is provided to insure that teachers in preparation receive the most possible in understandings and skills during the limited time of their preservice education.

The missing ingredient in plans to establish a viable, planned and productive in-service teacher education model is the conceptualization of curriculum (curricula) upon which to project continuing activities calculated to aid in the professional growth of teachers. Therefore, the model to be developed by the University of Kentucky would be predicated upon and translated into a curriculum of in-service education. Such a construct would help to project activities and procedures whereby the College of Education could function with a degree of consistency not now in evidence as it provides currently many unrelated and perhaps inappropriate acts of assistance to teachers in service.

Such a curriculum concept would necessitate the development of rather well defined constructs of: (1) appropriate purposes; (2) meaningful "content" to be experienced by the teacher; (3) viable organizational arrangements in keeping with the sequencing and limitations of time and resources of the school in which the teacher functions, and the limitations of the College of Education; (4) suitable physical facilities, equipment, and materials; and (5) appropriate teaching behavior and performance.

Because in-service teacher education must be a cooperative endeavor between the local educational agency and the College of Education, the broad outline of such a curriculum must be developed and detailed by responsible and knowledgeable personnel from both organizations.

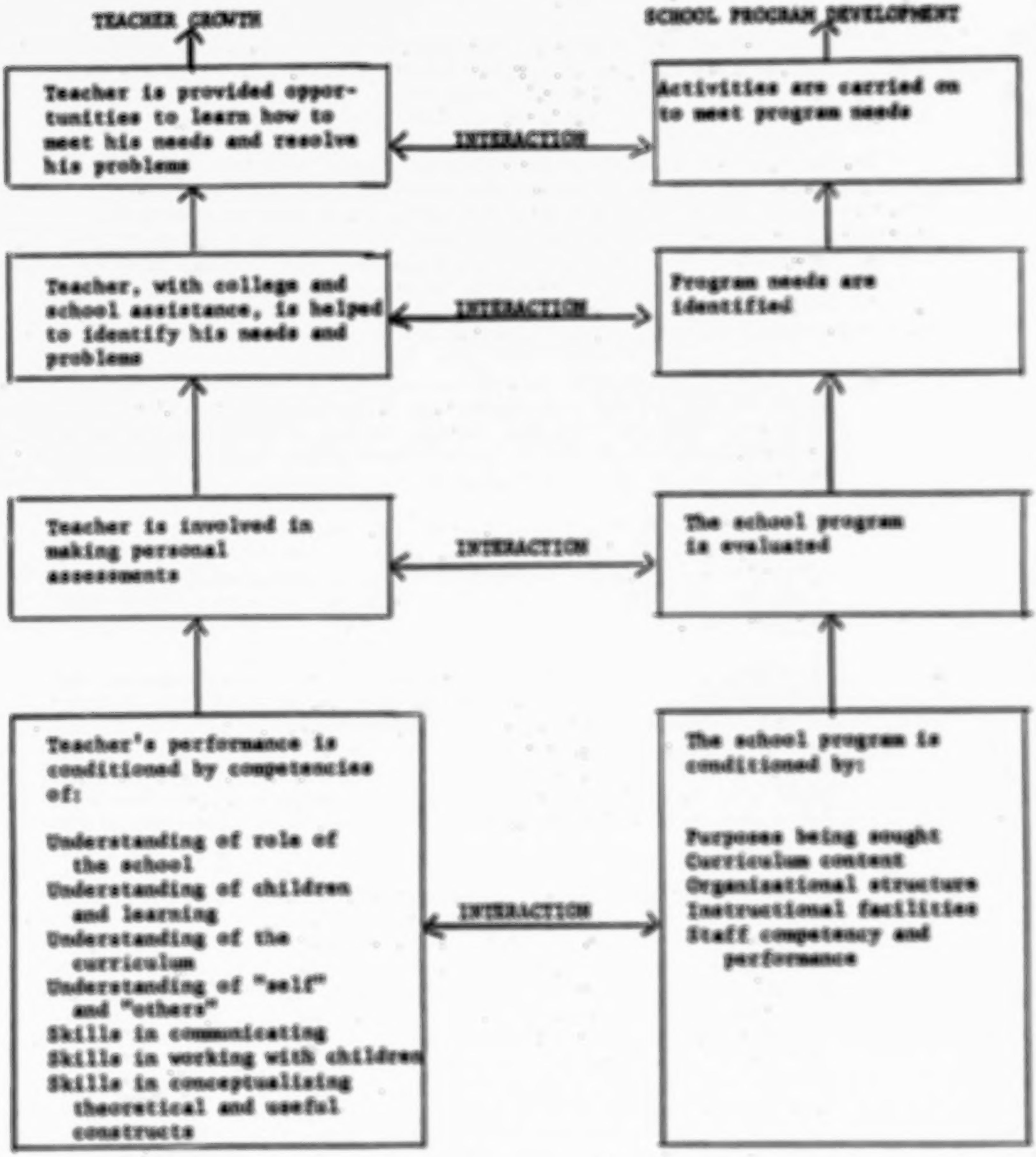
II. The model would restrict the College's function with the teacher to those tasks which should be and can be best performed by the College. All schools have the responsibility to improve the learning climate for the students they serve. This responsibility extends to the clarification of instructional purposes, improvement of the physical environment, improvement in the selection and use of instructional materials and equipment, improvment in the curriculum organization, and improvement of the performance of the teaching staff (in-service teacher education). When a college of education begins to accept joint responsibility for in-service teacher education, obviously, some conflicts of functions should be expected.

The proposed model would attempt to lessen jurisdictional conflicts between the school and college by identifying cooperatively the most appropriate functions for the college. This can be done by separating in-service teacher education from other school improvement activities; the former to be a cooperative function of both the college and the school, the latter to remain in the jurisdiction of the school. That is, as the school goes about its task of up-grading the quality of instruction, the college would focus its efforts toward improving the competence of the teacher as a working member of that school staff. Figure 1 is a tentative and gross design of how this might be conceptualized.

The college would be concerned primarily with helping the teacher grow professionally in those areas outlined on the left of Figure 1, though some assistance might be given the school in the activities listed on the right. Of course, the process represented in Figure 1, is greatly oversimplified. The basic point to be conveyed, however, is that concurrently with the teacher's involvement in his school improvement program he would also be engaged in a planned in-service education program supported by both the college and his school. Needless to say, the realities of the school environment would permeate and influence the design and implementation of his curriculum for self-growth.

III. *The model would provide for continuing feedback of knowledge for the modification of pre-service teacher education programs.* The efficacy of a pre-service preparation program can only be evaluated adequately by the feedback of data concerning the performance of teacher in service. Therefore, the model program would have built-in procedures for assessing the behavior of teachers who would have participated in the pre-service phase of the preparation program. One illustration is in order.

Typical pre-service teacher education programs currently operate on the basis of providing information which seems to be needed about education, with some minor emphasis to construct and concept development as bases for teaching methodology. As stated above, generally such programs function on deductive theory; i.e., the large concepts are identified and described by the instructor, then a variety of experiences are provided to clarify and support these major concepts. While this approach may be somewhat functional at the pre-service level, though it would be altered in the prepared model, it has some shortcomings in application to the in-service phase. If the teacher has not learned to synthesize viable and meaningful constructs from bits and pieces of insights gained from day to day experiencing in an instructional environment, the inductive process, then he can but fail to profit fully from the experiences he has as a practicing teacher. The synthesis of knowledge into conceptual configurations, or models, upon which to predicate actions and behavior is a high priority competence to be emphasized at any level of teacher education; it would seem to be an absolute essential at the in-service level. Only at the practicing level, actually teaching, can clinical assessments be made of the teacher's competence in developing and using such constructs. And these assessments should be fed back into the modification of pre-service programs.



Teacher is provided opportunities to learn how to meet his needs and resolve his problems

Activities are carried on to meet program needs

Teacher, with college and school assistance, is helped to identify his needs and problems

Program needs are identified

Teacher is involved in making personal assessments

The school program is evaluated

Teacher's performance is conditioned by competencies of:

- Understanding of role of the school
- Understanding of children and learning
- Understanding of the curriculum
- Understanding of "self" and "others"
- Skills in communicating
- Skills in working with children
- Skills in conceptualizing theoretical and useful constructs

The school program is conditioned by:

- Purposes being sought
- Curriculum content
- Organizational structure
- Instructional facilities
- Staff competency and performance

Figure 1
Schematic of interrelationship of Teacher Education
to School Program Development

Program Organization and Operation

The operation of the proposed model program would require a rather radical modification of present program organization. At this point only some gross projections can be made of the kinds of elements to be incorporated into an eventual organizational and operational pattern.

During the student's first two years on campus he would be enrolled in the College of Arts and Sciences for general education experiences. Simultaneously, if he had indicated his intent to become an elementary teacher, he would be involved, to the extent possible, in a block of informal pre-professional activities which might be termed Career Exploration. These activities would be used both for exploratory experiences for the student and as diagnostic devices for the projection of an eventual preparation program. The activities would include:

1. A series of non-credit activities planned and carried on by the staff of the College and student organizations designed to familiarize students with the various fields of teaching, provide insights into the world of the modern teacher, and, in general, help confirm or reject a commitment to teaching.

2. Work-study and related opportunities in adjacent school as aides, tutors, and auxiliary personnel. Such opportunities would be provided in a range of school and teaching environments; various grade levels, urban schools, rural schools, intensive experimentation, etc.

   Also during this period, or upon entry for transfer students, all students would be evaluated comprehensively on the basis of personality characteristics, academic achievement, levels of development in terms of requisite professional competencies, and genuine commitment to teaching. A team of competent staff diagnosticians would perform these assessments and make recommendations concerning a personalized program for each student to be admitted to the college.

   After admission, groups, of thirty sutdents each would be assigned to appropriate professors. Each such professor would, from this point on, be responsible for the development of a personalized program, or learning system, for each of his thirty charges. Regularly scheduled, credit seminars would be provided each group and these would be used for such purposes as: (1) providing interdisciplinary linkages between the concepts of the various fields, (2) abstracting meanings and implications for teaching, (3) projecting new learning experiences, and (4) providing each student with a security and sharing apparatus with firm ties to a specific group of students and his faculty team leader (advisor). In addition to such seminars, each student would meet, on a scheduled basis, with his faculty advisor to plan additonal personalized learning experiences within a context of his cooperatively developed learning system.

   During the final two years the student, in addition to the above described relationship with a seminar group and a professor, would be involved in formal class work to meet University general education requirements and in courses, seminars, and experiences in education. Education courses would continue to be available in such areas as human growth and development, the school as a social institution, education psychology and learning, teaching methodology, instructional media, et cetera, but these would be focused more upon modes of inquiry, structures, and usage than upon the dissemination of information. Supportive experiences of an appropriate and timely nature would give the student opportunities to interact with school children and school faculties.

The component now called student teaching would be modified considerably as laboratory experience. It is hypothesized that the range of experiences provided in the other components of the student's program would alleviate the necessity for extended practice teaching. Thus this would become variable in terms of length of time and tailored to meet the specific competencies each student would need to complement his program. For example, one student, because of his background of experience, knowledge, and interest might need a full semester in an inner city school where educationally disadvantaged children pre-dominate. Another student, with interest in teaching in such a school, might need only a few weeks of apprenticeship in that school.

Cooperatively developed arrangements with public school officials would provide school environments as learning laboratories for the kinds of student participation described above. Such arrangements would be sought also for in-service continuation of preparation programs--previously described--and the evolvement of apprenticeships, tutorial programs, and other on-the-job avenues.

In the latter context, the University of Kentucky operates community colleges (two year institutions) over the state. These institutions would become functional parts of in-service teacher education, with appropriate staff members designated to serve in that capacity. For example, if ten beginning teachers were to be located in the Ashland area, a staff member in that community college, after suitable briefing about the needs and characteristics of these teachers, would assume responsibility for working with their respective school authorities in continuing their professional growth. Of course, some restrictions and limitations would have to be accepted in this aspect of programing. (Such university-junior college kinships are rather common throughout the nation and so the implementation of this element of programing would seem to be possible elsewhere.)

The college staff not only would need to be reorganized into instructional teams, but also would need to call attention, or reflect, the two functions of management and resource. Each class, where course-work would be used, would need to be organized in terms of learning systems geared to the individual students, the objectives of the course, the resources available, and all other components of learning systems. If this procedure is not the modus operandi, the foundation of operation of each course, then the whole program would lose its maximum reflective impact and the staff would be continuing, in effect, to imply; "Do not do as we do, but do as we say do."

Efficient and comprehensive communication and coordination systems would be developed to insure adequate exchange of information concerning students between advising professor and other college faculty who come into contact with students. The enormity of this task is recognized, but it is believed the many problems therein can be resolved.

In a time framework, this preparation program model would be variable. While the basic pre-service segment would coincide with the traditional baccalaureate degree, four year period as a minimum, the exact time allocation would be determined by each student's achievement toward competence. Some students would complete the preservice phase in the minimum time, others would have programs extending a semester or more beyond. In the latter case, the student might remain on campus for continued learning or, in some cases, be engaged in an apprenticeship in an accessible, cooperating public school .

Though this organizational patterning would provide a continuing format for evaluating the growth of each student from his point of entry into the program, more specific evaluation procedures would be developed. As indicated in the Rationale, teaching is essentially an experimental act; therefore, the proposed model program likewise would be organized and implemented experimentally. The present process is to evaluate students in terms of their achievement in a program that is intuitively developed and seldom modified as a result of research. Even so, the insularity of most teacher education institutions would almost preclude any efficacious evaluation feedback from schools in which the students ultimately are employed. The model program would help to change this condition and make continuing research and evaluation of the practicing graduate a necessity.

Thus the experimental model program would require two kinds of research and evaluation: (1) Evaluation of the student in his program and after he begins his teaching career to determine the adequacy and appropriateness of his preparation. (2) Research and evaluation to determine the overall effectiveness of the model program and to identify components, procedures and processes for modifying that total program.

In effect, the model program would be developed as an hypothesis, tested in operation, and altered as research and evaluation would dictate. No other approach would seem to be viable.

A "systems analysis" approach to the evaluation and modification of the model program would seem to be necessary. Therefore, the total program would be broken down into its component parts and each part sujected, at least annually, to critical analysis in terms of its contribution to the total program. In general, PERTing techniques would be adapted and used in this evaluation process.

Program Facilities/Materials/Equipment

Implied throughout the above description of the model program is a recognition of the importance of facilities, materials, and equipment. Also implied has been a construct of learning theory which recognizes that individuals have characteristic modes of acquiring information, understandings, skills, and attitudes. It is absurd to presuppose that the omnipresent professional lecture, good though it may be, and some accompanying "field trips" would satisfy these modes of learning. Teaching methods must be comprehensive enough to be influenced and modified by the specific objective to be attained, the availability of appropriate instructional resources, and the learning skills and acuities of the learner. The teacher must be competent in specifying teaching objectives, understanding how the student learns and be able to differentiate between what he or other human resources can do best for the student and what can be done best by technological and other devices. The latter competency is concerned with teaching strategy.

The model program to be developed would recognize that new instructional media must be prominent components of innovative teacher education programs. Such media would not be used merely to supplement the effort of the instructor, but would be used in selective ways as elements of individualized learning systems in a deliberate manner. In this context the instructor must manage the input of media so that the most efficacious and appropriate use can be derived. Presently, new media are being used in teacher education to: (1) Provide more efficient pupil and classroom observations, (2) provide self-instruction and supervised practice experiences, (3) present college courses related to teacher education, and (4) provide large group exploratory opportunities. Closed circuit television, video and audio tape recordings, 8mm films, teaching machines, computer assisted instruction, et cetera are potentially productive instruments to this end. With these sight and sound media, a large number and variety of opportune and realistic examples of children's behavior and characteristics can be made readily available.

But the proposed model program, while accepting these uses of media and facilities, would be designed with an additional purpose in mind. As cited in the Directional Goals section of this proposal, "The model program would include the development of experimental 'learning systems' constructs to order and interrelate the complex array of learning components into conceptual frameworks with applicability both in teacher education and school classroom instruction." Therefore, a major concern in the model program would be an emphasis upon helping the prospective teacher develop such conceptual constructs for decision making as to the proper aid to use and the management of its use. It is not inconceivable that modern media and facilities could replace many of the traditional teacher functions; however, this will not occur until teachers recognize the potential in these devices and are quippped with adequate conceptual guidelines and contructs for their introduction and use in learning systems.

V

SUMMARY

In summary, there were a few commonalities that were located in the seventy-one unfunded models as well as in some of the nine funded ones.

1. There was response to the request for systems analysis in these programs. Extensive use of computers was proposed in most of the plans studied.

2. There was a heavy element of individualized instruction in many of the proposals concentrating on self-selection, self-pacing, and self-evaluation of the trainees throughout.

3. There was a noticeable abandonment of traditional course and time structures. A number of the proposals stipulated programs that would run through several years in which students may be cycled and recycled for several years through parts of the program. The better proposals tended to give up current concepts of course credit, grading, and the usual academic time structures.

4. The better proposals seemed to agree on many weaknesses in present elementary teacher education programs. There were a number of good statements on those weaknesses such as those found in the proposals from the University of Kentucky, Temple University, the University of Texas, Ball State University, and the like.

5. There was common agreement in these proposals that many agencies needed to be involved in planning teacher education programs, not just the College of Education. The agencies most frequently mentioned were Community and Social Agencies, State Departments of Public Instruction, the Regional Educational Research Laboratories, Psychological Clinics, Academic Departments representing those academic areas taught in the public schools, et cetera. Parenthetically it must be noted that most proposals did not reflect this agreement in the preparation of the proposals themselves.

6. There was a heavy reliance on the potential positive uses of audio-visual and multi-sensory technology. Furthermore, there was recognition of the need for college teachers themselves to demonstrate wide and wise utilization of audio-visual technology as well as for prospective teachers to observe these uses in a variety of public school settings.

7. There was a call for both increased and earlier involvement with concrete experiences with children. A few proposed starting in the freshman year while many of the proposals tended to postulate five and even six year programs with sequential laboratory experiences in evidence throughout the program. One proposal specified the beginning of laboratory experiences

while the prospective elementary teacher was still a student at the secondary school level. Some called for enriched and extended laboratory experiences of which many included simulation, laboratory and micro-teaching experiences as well as giving particular stress to the student teaching and internship concepts.

8. On the other hand, a few of the more unique proposals indicated that student teaching might even be phased out in terms of how it is currently being utilized in the preparation of the prespective elementary teacher. In these cases concentration might well be given to extensive and sequential teaching projects conducted by the prospective teacher in one or more settings until successful completion of the project. These proposals were marked by major dependence upon internship teaching experiences at the advanced undergraduate or beginning graduate levels. Most of these latter proposals built in one or two year internships along with a program of studies resulting in a masters degree at the end of the fifth or sixth year of collegiate work.

9. Another common element in the proposals was the reference to inservice programs in order to up-date elementary education faculty members.

10. It was noticeable that many proposals called for the use of the team approach consisting of professionals and para-professionals thereby redefining the roles and responsibilities of teachers, teacher aides, and indeed, all school services personnel.

11. Essentially, the vast majority of the proposals talked about the defining of teacher tasks and teacher behaviors to be learned based on some kinds of analyses of weaknesses in current training and on analyses of actual elementary school teaching today. Relatively few proposals dealt with a projection of what actual elementary school teaching ought to be like in the future.

In terms of assessing some of the criticisms of the seventy-one unfunded models and at the risk of sounding as if these comments refute the above statement of commonalities, we must give attention to the following points:

1. In general, there wasn't enough attention given to the uniquenesses of performance needs for teachers and the relationship of those uniquenesses to the needs for training of instructional personnel at the pre-school and early childhood education levels despite the inclusion of this stress in the guidelines for proposal writers. Similarly, there wasn't enough attention given to the problems of preparing teachers for work with the so-called "disadvantaged." Not enough attention was given to the problems of inservice education of the staff other than frequent mention of the use of consultants on the model building phase. Much concern seemed to be in evidence on the desirable interrelationships with the rest of the academic staff that conducts the bulk of the undergraduate program for the preparation of the elementary teacher outside of the field of professional education, but this written concern was not reflected much in the preparation of

these proposals. Not much detailed attention was given to the needs for programs of followup and in-service training of graduates nor to the evaluation of program effectiveness.

There was very limited attention given to the implications of the relationships and problems implicit in the education of the teachers of teachers. Yet that was one of the parts of the program components called for in the guidelines.

2. In general there was limited use of the knowledge and techniques of computer technology and other kinds of multi-sensory and audio-visual technology. Many words were actually devoted to these proposed utilizations but not much real evidence seemed to exist that the proposal writers had much deep understanding of the current and potential uses of modern technology.

3. In general there was relatively limited use of elementary education related personnel. By this we mean the proposed utilization of sociologists, anthropologists, psychologists, clinical and testing services of all kinds, and the utilization of industrial educational technological services. In addition relatively little attention was given to the potential utilization of community, social and family agencies for their possible uses in the training of the elementary teacher.

4. There didn't seem to be in many of the proposals any real discussion of the purposes of education at the elementary school level. One might logically assume that this is the specific point at which a program proposal might start when considering the preparation of elementary teachers. Rather, there was an extensive discussion in many of the proposals of what is, not what conceivably ought to be in the future. However, eight or nine of the proposals did deal with the future elementary school and its need for teachers. Specifically some of the better proposals along this line came from Stanford University, the University of Kentucky, the American Institutes for Research, Arizona State University, Kansas State Teachers College, the University of Tennessee, Goddard College, Systems Development Corporation, Eastern Kentucky State University, University of Illinois, University of Houston, and Harvard College.

5. There is a gross lack of any demonstrated student involvement in the preparation of any of the proposals. This was coupled with a relative lack of any attention to student involvement in the actual planning and conduct of the proposed design phase of the programs and, subsequently, in the conduct of the programs. Very few dealt with student self-pacing and self-evaluation and students' functional direction of their own learning experiences. It was interesting to note that where this feature was lacking in the proposal per se, the proposal itself indicated that the program ought to turn out teachers who would encourage such behavior on the part of elementary school children.

6. At the risk of sounding repetitious, there was relatively little observable real concern for teacher training in the bulk of the proposals in the sense of the training of teachers of teachers. This would seem to be most crucial.

Finally, where do we stand in the total program at this point in time? Nine models have been funded. In August, 1968 we were told that the Office of Education hoped to be able to more massively fund two or three development phase proposals which would serve as "lighthouse" demonstration centers. The author and others have represented to the Office of Education that two or three might not be enough and we have asked for funds sufficient to support at least four or five additional programs from among institutions that produce large numbers of elementary teachers. The original plan was to commit about 25 to 30 million dollars to the development phase with an escalation of additional institutions in the next four or five years. We hope that that can be broadened to include more than just two or three programs initially.

Perhaps the actions being taken by the University of Florida can be emulated. Their program was not funded but they have moved ahead, set up their consultant panel and internal planning teams, are redefining their proposal, and the University of Florida College of Education expects to put the new program into operation. A research project comparing the new program with their existing program will be proposed. I would urge that those of us that are interested in the future of elementary teacher education look at the educational specifications in the nine funded models and then undertake to proceed on the same kind of basis as the University of Florida. The new and developmental programs that result might be the most exciting things that we can engage ourselves in over the next few years.

APPENDIX A.

PARTICIPANTS IN TEACHER-DEVELOPMENT-PROGRAM ADVISORY SESSION
AUGUST 2, 1967

NON-OE PARTICIPANTS

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APPENDIX D.

PLANNING PHASE

8/2 - 8/3/67	Review by consultants
9/22 - 9/23/67	Program and RFP reviewed by Research Advisory Council

DESIGN PHASE

10/1/67	RFP for design studies released
12/1/67	Deadline for submission of design proposals
1/1/68	Design studies selected
2/1/68	Contracts for design studies awarded
8/31/68	Due date for final reports on design studies

DEVELOPMENT PHASE

10/1/68	Designs selected and RFP released
2/1/69	Deadline for submission of development proposals
3/1/69	Development studies selected
4/1/69	Development contracts negotiated

7/31/67

APPENDIX C.

QUESTIONS FOR ADVISERS

1. (a) Do you consider $30 million a realistic funding level for the production of between two and three varied, comprehensive, and transportable model teacher-training packages for preparing preschool, elementary, and intermediate-level teachers (excluding normal operating costs of institutions)? If so, is your affirmative answer contingent upon specific assumptions or conditions? Please elaborate. If not, what would you consider adequate support to accomplish the above goals? Please support your recommendation. (b) Is $100,000 a realistic estimate of the cost of producing a detailed design?

2. Is any part of the enclosed time schedule unrealistic? If so, please revise the schedule wherever necessary and support your recommendation.

3. Given the likelihood that program design and program development will be carried out by different institutions, is it necessary to build into our program plans some strategy for assuring communication/articulation between the two? If so, what specific suggestion would you make?

4. What recommendations would you make regarding strategies for effective monitoring of the entire teacher-education program development effort? of the development phase (Phase II) only?

5. Our present thinking is to limit competition for the development-phase (II) contract to institutions producing large numbers elementary school teachers (i.e. 250 graduates a year), in the interest of assuring program impact. If you question the wisdom of such limitation, please give your reasons. Do you see any value in limiting the audience for the design RFP (Phase I)? If so, please explain.

6. At our August 2 advisory meeting, a number of areas, such as accreditation, certification, and the bureaucratic structure of institutions, were identified as potential obstacles to effective change in teacher education. What others might be added? How can they be dealt with?

7. How might we benefit from funding a coalition of institutions at either the design (I) or development (II) stage? Would problems in implementing the program under these conditions outweigh any gains? Explain.

8. What kinds of specifications should be included in the design (I) and development (II) RFP's to guarantee maximum transportability of the final product?

9. What degree of specificity should we seek in a design or model? Please list essential topics which you think each designer should attend to, and develop one specification in the desired degree of detail.

10. Assuming that one criterion for selecting a design for development is the feasibility of implementing it in some existing institution, should we require all designers to project the necessary modifications of the design, in total or in part, which they foresee after five years--ten years, etc.? Please support. Would it be sufficient to require as part of the design a detailed method for assessing, revising, and updating the program? How can the need for program modification be continually and systematically assessed?

11. What requirements could be included in the first RFP to determine the design capabilities of the proposing institution?

12. To what extent should the designers be concerned with those parts of the undergraduate curriculum not under the School/Department of Education? Would specification of the "nonprofessional" segments greatly limit the feasibility of implementing the program?

13. What provision for retraining teachers of teachers could be made within the framework of a comprehensive development project focussing on preparing teachers for the schools?

14. Viewing inservice teacher education as a logical extension of the preservice program, what types of content/experiences seem more appropriate for on-the-job training?

15. If you were designing a model teacher-education program, what behavioral objectives would you write for the trainees?

16. What value, if any, would accrue from our providing a vehicle for communication among model builders? What would you suggest as a potentially effective mechanism?

17. What types of specifications should be included in the second RFP to assure us of the proposing institution's commitment to implementing the program? What individual(s) can commit the institution? What commitments outside the School/Department of Education and outside the institution are necessary to assure successful program implementation and adoption?

18. The enclosed time schedule stops with the negotiation of the development (II) contracts. What would be a realistic period of time to allow for developing and implementing the total program? Please support your estimate.

19. How can the impact of a particular program be assessed within the period of the development (II) effort? How would one measure the long-range impact?

Realistic Program Constraints:

1. Launch the program in February 1968 with $1 million.

2. Begin development phase in February 1969.
3. Implement total program in 5 to 6 years to have measurable impact on the education of pre-school, elementary, and intermediate level teachers.
4. Approximately $30 million for total effort.

August 10, 1967

APPENDIX D.

U.S. OFFICE OF EDUCATION
400 MARYLAND AVENUE, SW.
WASHINGTON, D.C. 20202

REQUEST FOR PROPOSALS AND PROPOSAL

I - REQUEST FOR PROPOSALS NO. OE-68-4 DATE: October 16, 1967

A. Written proposals for the products and services set forth in the provisions and subject to all specified terms and conditions will be received at the above office until the close of business January 1, 1968. General information and instructions relative to proposals are contained in the enclosed "Administrative Instructions for Offerors."

B. Products to Be Furnished. Educational Specifications for a Comprehensive Undergraduate and Inservice Teacher Education Program for Elementary* Teachers.

C. Statement of Problem. Because of the key role that the teacher plays in facilitating learning, particularly with young children, he/she must have the most up-to-date theoretical and substansive knowledge and professional skills to perform successfully. To date, research and development activities have generated new knowledge, materials, and methodologies with great potential for improving the effectiveness and efficiency of the teaching-learning process. If funds are made available, institutions should be able at this time to completely restructure their teacher education programs to include the best of what is now known and available.

What is clearly needed at the outset is a variety of sets of detailed educational specifications which can be used as guides in developing sound teacher education programs. Such model specifications would encompass all aspects of a program for training teachers -- administration, instruction, materials, equipment, and staffing; thus it would be possible for institutions to select and make use of the specifications in developing and implementing significantly improved programs for training teachers.

D. General Scope of Work. The program initiated by this request for proposals is designed to produce alternative teacher education models developed in sufficient detail to enable ready development into operating programs and full implementation by other institutions that train teachers. This request is expected to result in the design of between 5 and 15 comprehensive and detailed sets of educational specifications which will describe model training programs for institutions or coalitions of institutions producing large numbers (approximately 100 or more a year) of elementary teachers.

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*Elementary includes preschool (begining with ages 2 or 4)--and may include the middle school (extending through grade 8).

All who would participate in the program must work within the limit of the following time schedule:

1/1/68	Deadline for submission of proposals
3/1/68	Award of contracts
10/31/68	Due date for final reports on developed models (educational specifications).

E. Specific Scope of Work. In recognition of the wide variety of possible conceptual frameworks for programs to train teachers,* the following program components (page 3) are included merely for consideration by those preparing proposals. Any of these components may be rejected or recast and additional components added. The particulars of each of the components in the proposer's model, however, as well as any sub-category thereof should be described; a rationale (based on research and/or logic) compatible with the conceptual framwwork of the entire model should be provided for each component of a teacher education program as specifically described; and the procedures for fully developing the specifications for each component of the model should be delineated. A vita for the project director and for each staff member playing a major role in the development of the specifications is required as well.

Each proposal should also include a detailed time schedule, deterthrough perting the project or utilizing a comparable management scheme which will indicate to what extent, at any time in the life of the project, the specifications of a given program component should have been developed. Throughout the development of the proposal is should be remembered that the expected product of each funded project is a set of educational specifications for a model teacher education program sufficiently detailed to permit development and implementation, with only minor modifications, in any institution or institutions desiring to use them as a basis for restructuring and improving their programs for training elementary teachers.

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* For example, some teacher education programs might include educational theory, instructional methods and subject matter, and clinical teaching experiences as an integral part of the undergraduate curriculum. Other programs might prescribe a general education undergraduate program, with an academic major or majors, to be followed by a program of professional training in the schools. The latter might be administered in varying degrees by an institution of higher education and by a school system. However, in any event a teacher training program should include both preservice and inservice experiences for the prospective teachers, and each proposal should show how professional educators in local school system will be involved in the project.

Program Components

1. Teacher-training program goals in terms of expected and measurable teacher behaviors; the rationale for each of the desired behaviors.

2. Practices for selecting teacher trainees for the program.

3. Professional (in College/Department of Education) learning experiences and content to be provided trainees in the following categories:

   a. Theory;
   b. Subject matter related to elementary school curriculum;
   c. General approaches to instruction and specific teaching
   d. Preclassroom clinical experiences (e.g. simulation, role playing);
   e. Student teaching;

   and the teaching methods; including tools, techniques and grouping practices or methods of individualizing instruction, to be employed by the college faculty in presenting the various kinds of professional content.

4. Relationship of professional sequence (not necessarily courses) to entire undergraduate program: When a particular activity would be introduced in the undergraduate program; what percentage of the total undergraduate curriculum it would comprise; and what non-professional courses (outside College/Department of Education) would be required/recommended.

5. Types of content/experiences appropriate for on-the job (inservice) training for graduates of model program, as well as the kinds of materials and methods to be used.

6. Faculty requirements and staff utilization pattern; inservice training program for college staff.

7. Evaluation and feedback techniques to be used throughout and at the end of the program to determine to what extent trainees have acquired the essential teaching behaviors; follow-up studies of program graduates.

8. Multipurpose management and evaluation system, with data storage and rapid retrieval capabilities, to permit continuous diagnosis of student progress and frequent restructuring of the trainee's learning experiences.

9. Plan for continually and systematically assessing, revising, and updating the program.

APPENDIX E.

RESEARCH IN TEACHER EDUCATION

Explanation for the initials found in the right hand column on the following lists of research topics.

CPI	Current Project Information presents information about Research Projects funded by the Bureau of Research, Office of Education. CPI is accumulated each month. New projects are added as they are initiated; deletions are made only when projects have been closed. The Project Resumes are arranged in sequence by the E. P. (Educational Project) Accession Numbers.
RIE	Research in Education is a monthly catalog which is designed to provide up-to-date information about educational research sponsored by the Bureau of Research, U.S. Office of Education. Those starting with ED...are completed and can be ordered from: Eric Document Reproduction Service Bell & Howell Company 1700 Shaw Avenue Cleveland, Ohio 44112 Project documents--those with EP numbers cannot be ordered.
OE-RR	Office of Education-Research Reports presents information on completed projects from 1956-1965. (in press)
ABSTRACT	This word indicates that additional information may only be secured from the final report or the abstract. These did not appear in the above publications.

TEACHER EDUCATION (GENERAL)

5-0330	ATTITUDES AND PERCEPTIONS OF DESIRABLE TRAITS AND BEHAVIOR OF TEACHERS. Kerlinger, F. N.--New York University	EP 000 038 CPI
5-0345	DIFFERENTIAL ASSOCIATION OF ELEMENTARY SCHOOL TEACHER CHARACTERISTICS WITH SCHOOL SYSTEM TYPES. Turner, Richard L.--Indiana University.	EP 000 043 CPI
5-0566	DEVELOPMENT OF A PERFORMANCE TEST OF TEACHING PROFICIENCY. Popham, W. J.--University of California.	EP 000 095 CPI
5-0585	DEVELOPMENT OF TECHNIQUES TO ANALYZE TEACHER STRATEGY AND RESULTING STUDENT PERFORMANCE. Gallagher, James T.--University of Illinois.	EP 000 100 CPI
5-0597	A STUDY OF INQUIRY PATTERNS IN TEACHER TRAINING PROGRAMS. Shulman, Lee-Michigan State University,	EP 000 111 CPI
5-0652	COMPUTER SCIENCE INSTRUCTION IN ELEMENTARY GRADES. Starkweather, J.A.--California University, San Francisco.	EP 000 127
5-0774	SUCCESSIVE VS. SIMULTANEOUS ATTAINMENT OF INSTRUCTIONAL OBJECTIVES IN CLASSROOM SIMULATION Kersh, Bert Y. and Twelker, Paul A.--State System of Higher Education, Teaching Research Division, Monmouth.	EP 000 165 CPI
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5-0253	STUDIES OF THE USE OF PROGRAMED INSTRUCTION IN THE CLASSROOM. Glaser, Robert and others--University of Pittsburgh.	ED 010 208 RIE
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5-0203	AN APPLICATION OF A MODEL OF CREATIVE THINKING TO TEACHING IN A FIRST GRADE CLASSROOM. Mann, John S.--University of Wisconsin, Madison.	ED 010 233 RIE
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6-8111	MOTIVATIONAL FACTORS INFLUENCING PERSISTENCE IN TEACHING AS REVEALED BY INTERVIEWS. Fuchel, Judith C.--City University of New York.	ED 010 438 RIE
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624	A STUDY OF TEACHER BEHAVIOR IN RELATION TO CHILDREN DIFFERING IN ANXIETY LEVEL. Sarason, Seymour B. and Davidson, Kenneth S.--Yale University, New Haven.	ED 002 911 OE-RR
NDEA-VIIB-0848	A PROJECT TO IMPROVE THE PROFESSIONAL SEQUENCE IN PRESERVICE TEACHER EDUCATION THROUGH THE SELECTIVE AND PLANNED USE OF NEW MEDIA. LaGrone, Herbert F., Wedberg, Desmond P.--American Association of Colleges for Teacher Education, Washington, D.C.	ED 003 156 OE-RR
2518	THE CHARACTERISTICS OF TEACHER EDUCATION STUDENTS IN THE BRITISH ISLES AND THE U.S. Dickson, George E.--Toledo University.	ED 003 342 OE-RR
2619	CHANGES IN CONCEPTS DARING AN INTRODUCTORY COURSE IN EDUCATION. Bolton, Dale L.--Washington University, Seattle.	ED 003 383 OE-RR
F-015	AN ANALYSIS AND PROJECTION OF RESEARCH IN TEACHER EDUCATION. Cyphert, Frederick R. and Spaights, Ernest--Ohio State University.	ED 003 399 OE-RR
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S-005	EVALUATION AND SELECTION INSTRUMENTS IN TEACHER EVALUATION PROGRAMS. Farr, David S.--State University of New York, Buffalo.	ED 003 437 OE-RR
S-225	LEARNING BY OBSERVATION OF MODEL CLASSROOM SITUATION. Semler, Ira J.--Cedar Rapids Community School District.	ED 003 472 OE-RR

NDEA-VIIA-127	PRODUCTION AND USE OF CLASSROOMS ON FILM VERSUS TRADITIONAL OBSERVATIONS IN TEACHER EDUCATION. Painter, William I.--Akron University.	ED 003 497 OE-RR
NDEA-VIIA-158	A STUDY TO DETERMINE THE RELATIVE EFFECTIVENESS OF THE USE OF A SERIES OF FILMED DEMONSTRATIONS IN TEACHER EDUCATION FOR A NEW HIGH SCHOOL MATHEMATICS CURRICULUM. Beberman, Max and Van Horn, Charles--National Educational T.V. and Radio Center.	ED 003 502 OE-RR
NDEA-VIIA-068	IMPROVEMENT OF STUDENT TEACHING THE USE OF TELEVISION FOR IMPROVING MEASURES OF STUDENT TEACHING PERFORMANCE PHASE I. Schueler, Herbert and others--City University of New York-Hunter College.	ED 003 510 OE-RR
NDEA-VIIA-068	A COMPARISON OF METHODS OF OBSERVATION IN PRESERVICE TEACHER TRAINING--THE USE OF TELEVISION FOR IMPROING TEACHER TRAINING AND FOR IMPROVING MEASURES OF STUDENT-TEACHING PERFORMANCE, PHASE II. Stoller, Nathan and Lesser, Gerald S.--City University of New York.	ED 003 511 OE-RR
NDEA-VIIA-077	CLOSED CIRCUIT TELEVISION IN TEACHER EDUCATION. Keller, Robert J. and others--Minnesota University. Minneapolis.	ED 003 512 OE-RR
NDEA-VIIA-130	A STUDY OF PRESERVICE TEACHER EDUCATION IN THE USE OF MEDIA OF MASS COMMUNICATION FOR CLASSROOM INSTRUCTION. Oliver, G. E. and others--Georgia University.	ED 003 528 OE-RR
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NDEA-VIIA-192	SELECTED VICARIOUS EXPERIENCE VERSUS DIRECT OBSERVATIONAL EXPERIENCES OF PRE-SERVICE TEACHERS IN THE FOUNDATION AREAS OF PROFESSIONAL PREPARATION AT THE UNIVERSITY OF OKLAHOMA. Fulton, W.R. and Rupiper, O. J.--Oklahoma University, Norman.	ED 003 553 OE-RR
NDEA-VIIA-374	AN INVESTIGATION OF MOTION PICTURE FILM AND THE PROGRAM ANALYZER FEEDBACK TO IMPROVE TELEVISION TEACHER TRAINING. Johnson, Craig F. and others--Ohio University, Athens.	ED 003 555 OE-RR

NDEA-VIIA-419	TELEVISION AND CONSULTANT SERVICES AS METHODS OF INSERVICE EDUCATION FOR ELEMENTARY SCHOOL TEACHERS OF MATHEMATICS. Devault, Vere M. and others--Texas University.	ED 003 562 OE-RR
NDEA-VIIA-470	TAPE RECORDED LECTURES IN THE COLLEGE CLASSROOM 11-AN EXPERIMENTAL APPRAISAL. Popham, James W.--San Francisco State College at San Francisco.	ED 003 575 OE-RR
NDEA-VIIA-685	A COMPARATIVE INVESTIGATION OF THE INSTRUCTIONAL AND ADMINISTRATIVE EFFICIENCY OF VARIOUS OBSERVATIONAL TECHNIQUES IN THE INTRODUCTORY COURSE IN EDUCATION. Wedberg, Desmond P. and Finn, James D.--University of Southern California.	ED 003 592 OE-RR
NDEA-VIIA-886	CLASSROOM SIMULATION--A NEW DIMENSION IN TEACHER EDUCATION. Kersh, Bert Y.--Oregon State System of Higher Education, Monmouth.	ED 003 613 OE-RR
S-069	VALIDATION OF AN INVENTORY MEASURING ATTITUDES TOWARD INSTRUCTIONAL PRINCIPLES. Popham, James W., Baker, Eva L.--California University, Los Angeles.	ED 003 678 OE-RR
NDEA-VIIB-074	TELEVISION FOR TEACHERS IN SERVICE. Loubriel, Oscar and Moran, Ruberto--Puerto Rico University.	ED 003 731 OE-RR
S-108	CURRICULA FOR TEACHER EDUCATION AND CORRELATION OF NATIONAL TEACHER EXAMINATION SCORES AND GRADE POINT AVERAGES. Hall, Jerry A.--North Carolina State Board of Education, Raleigh.	ED 003 845 OE-RR
S-168	USE OF A TAXONOMY OF QUESTIONS TO INCREASE THE VARIETY AND QUALITY OF THOUGHT IN THE CLASSROOM. Sanders, Norris M. and others--Manitowoc Public Schools, Wisconsin.	ED 003 859 OE-RR
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5-0826	A STUDY OF THE FACTORS OPERATIVE IN THE SELECTIVE RETENTION OF STUDENTS IN TEACHER EDUCATION PART II. Cook, Walter W.--Minnesota University.	ABSTRACT

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5-1046	TEACHING STRATEGIES AND COGNITIVE FUNCTIONING IN ELEMENTARY SCHOOL CHILDREN. Taba, Hilda--San Francisco State College.	ABSTRACT
5-8237	EFFECTS OF DEMONSTRATION TEACHING UPON EXPERIENCED AND INEXPERIENCED TEACHERS. Harris, Ben M.--University of Texas.	ABSTRACT
5-8411	A PILOT PROJECT TO DEVELOP MATERIALS FOR USE IN THE PRE-SERVICE AND INSERVICE MATHEMATICS TRAINING OF ELEMENTARY TEACHERS. Brumfiel, Charles--University of Michigan, Ann Arbor.	ABSTRACT
5-8412	EXPLORATORY TYPE OF EVALUATION OF TV TRAINING OF ELEMENTARY MATHEMATICS TEACHERS. Dwight, Leslie A.--Southeastern State College, Durant, Oklahoma.	ABSTRACT

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5-0766	THE EFFECT UPON THE BEHAVIOR AND ATTITUDES OF STUDENT TEACHERS OF TRAINING COOPERATING TEACHERS AND STUDENT TEACHERS IN THE USE OF INTERACTION ANALYSIS AS A CLASSROOM OBSERVATIONAL TECHNIQUE. Amidon, Edmund J.--Temple University.	EP 000 159 CPI
5-1079	EXPLORATION OF THE UTILIZATION OF PERSONNEL IN THE SUPERVISION OF STUDENT TEACHERS WHEN EDUCATIONAL MEDIA ARE EMPLOYED. Joyce, Bruce R.--Columbia University	EP 000 240 CPI
5-8204	ANALYSIS OF PATTERNS OF STUDENT TEACHING. Connor, William H.--Washington University, Missouri	EP 000 598 CPI
6-8078	THE EFFECT OF INSTRUCTION IN INTERACTION ANALYSIS ON A STUDENT TEACHER'S CLASSROOM VERBAL PATTERN. McLeod, Richard J., Bruce, Matthew H.--Cornell University.	EP 010 377 CPI
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6-1349	VARIABLES AFFECTING DECISION-MAKING IN THE SELECTION OF TEACHERS. Bolton, Dale L.--University of Washington, Seattle.	EP 010 533 CPI
6-1321	ISOLATING RELEVANT VARIABLES IN STUDENT TEACHER ASSESSMENT. Sharpe, Donald M.--Indiana State University, Terre Haute.	EP 010 556 CPI
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5-0001	STUDENT AND FIRST-YEAR TEACHERS' ATTITUDES TOWARD SELF AND OTHERS. Wright, Benjamin D., Tuska, Shirley A.--University of Chicago.	ED 010 283 RIE
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1026	FUNCTIONS OF STUDENT TEACHING, ATTITUDE, FORMATION, AND INITIATION IN ELEMENTARY STUDENT TEACHING. Iannaccone, Lawrence and Button, Warren--Washington University, Missouri.	EP 003 011 OE-RR
1091	A RESEARCH ORIENTED ELEMENTARY EDUCATION STUDENT TEACHING PROGRAM. McDonald, James B. and others--Wisconsin University, Milwaukee.	ED 003 039
1717	RELATIONSHIPS BETWEEN PERSONALITY VARIABLES AND CLASSROOM BEHAVIOR OF TEACHING INTERNS. Gordon, Ira J.--Florida University.	ED 003 303 OE-RR
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5-0649	A PILOT PROJECT TO DEVELOP AN ELEMENTARY SCIENCE SEQUENCE. Shamos, Morris--New York University.	EP 000 125 CPI
5-1121	SELF-EVALUATION IN INSERVICE TEACHER EDUCATION. Jensen, Paul H.--State System of Higher Education Teaching Research Division, Monmouth, Oregon	EP 000 257 CPI
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6-1234	MATHEMATICS-TEACHING BEHAVIOR CHANGES MADE BY INTERMEDIATE GRADE TEACHERS DURING A 15-WEEK PERIOD OF INSTRUCTION BY EDUCATIONAL TELEVISION. Corle, Clyde G.--Pennsylvania State University.	EP 000 321 CPI
6-2062	PRODUCTION OF A FILM DEMONSTRATING THE TEACHING OF ENGLISH AS A SECOND LANGUAGE TO LEARNERS OF ELEMENTARY SCHOOL AGE AND LEVEL. Mcintosh, Lois--University of California, Los Angeles.	EP 000 480 CPI
6-1365	INTERN PROGRAM FOR TEACHERS ASSIGNED TO URBAN NEIGHBORHOODS OF LOW INCOME., AN. Strom, Robert D.--Ohio State University, Columbus.	EP 000 611 CPI.
6-8760	EVALUATING AN INSERVICE METHODS COURSE BY SYSTEMATIC OBSERVATIONS OF CLASSROOM ACTIVITIES. Caldwell, Harrie E.--Syracuse University.	EP 000 644 CPI
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6-8407	PREDICTING INDIVIDUAL SUCCESS IN PROGRAMING. Lysaught, Jerome P.--Rochester University.	EP 010 481 CPI
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5-0360	EFFECTS OF REDUCED LOADS AND INTENSIVE INSERVICE TRAINING UPON THE CLASSROOM BEHAVIOR OF BEGINNING ELEMENTARY TEACHERS. Hite, Herbert F. and others--Washington State University, Pullman.	ED 010 162 RIE
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725	ROLE OF EVALUATION IN CREATIVE THINKING. Torrance, E.P. and others--Minnesota University.	ED 002 921 OE-RR
702	EFFECTS ON USE OF TESTS BY TEACHERS TRAINED IN A SUMMER INSTITUTE. Hastings, J. T. and others--Illinois University, Urbana.	ED 002 925 OE-RR
NDEA-VIIB-096A-5	TELEVISION UTILIZATION PROJECT DEMONSTRATION KIT 5, A CASE STUDY IN THE ELEMENTARY SCHOOL. Tettemer, Clair R., National Association of Educational Broadcasters, D.C.	ED 003 117 OE-RR
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NDEA-VIIA-269	THE USE OF CLOSED CIRCUIT TELEVISION TO IMPROVE TEACHER EFFECTIVENESS. Follis, Lee and King, Arthur R.--Fontana Unified School District, California.	ED 003 523 OE-RR
NDEA-VIIA-008E	ANALYSIS OF METHODS IN WHICH APPLICATION OF NEW COMMUNICATIONS MEDIA MAY IMPROVE TEACHER PREPARATION IN LANGUAGE, SCIENCE AND MATHEMATICS. Tintera, James B.--Michigan State University, East Lansing.	ED 003 527 OE-RR
NDEA-VIIA-676	PROGRAMING A TEACHING MACHINE COURSE IN THINKING AND PROBLEM SOLVING. Day, Willard F.--Nevada University	ED 003 590 OE-RR
NDEA-VIIB-074	TELEVISION FOR TEACHERS IN SERVICE. Loubriel, Oscar and Moran, Roberto--Puerto Rico University.	ED 003 731 OE-RR
S-081	DEVELOPMENT OF INSTRUCTIONAL MATERIALS FOR A PROCESS-ORIENTED CURRICULUM IN SCIENCE FOR GRADES K-6. Butts, David P.--Texas University.	ED 003 849 OE-RR
5-8353	A PREPARATORY STUDY OF THE INTRODUCTION OF NEW SCIENCE CURRICULAR MATERIALS AND PROCEDURES INTO THE ELEMENTARY GRADES OF TWO SCHOOL DISTRICTS. Rieser, Leonard M.--Manitowoc Public Schools, Wisconsin.	ABSTRACT
6-1764	A DEVELOPMENTAL CONFERENCE FOR THE PURPOSE OF CONSIDERING THE PROBLEMS OF CURRICULUM DEVELOPMENT FOR ELEMENTARY IN-SERVICE EDUCATION IN ENGLISH. Bailey, Dudley--University of Nebraska.	ABSTRACT

PRESERVICE EDUCATION

6-8215	TEACHER EFFECTIVENESS AND PROFESSIONALITY--A STUDY OF THE TEACHER'S ROLE AND PROFESSIONAL TRAINING. Heddendorf, Russell--Geneva College, Georgia.	EP 010 480 CPI
039	AN INVESTIGATION OF THE PROFESSIONAL PREPARATION AND PERFORMANCE OF STUDENTS GRADUATING FROM TEACHER TRAINING. Standlee, Lloyd S. and others--Indiana University.	ED 002 751 OE-RR
S-178	DEVELOPMENT OF A PROGRAMMED COURSE OF STUDY IN MANUSCRIPT AND CURSIVE HAND WRITING FOR USE IN TEACHER EDUCATION. Plattor, Emma E.--Rochester University.	ED 003 400 OE-RR
S-028	TEACHER AIDE SERVICE AS A MEANS OF ENRICHING A SOPHOMORE COURSE IN EDUCATIONAL PSYCHOLOGY. Lang, Gerhard and Hochman, Irvin--Farleigh Dickinson.	ED 003 443 OE-RR
NDEA-VIIA-079	AN EXPERIMENTAL STUDY OF PATTERNS FOR IMPROVING THE PREPARATION OF PRE-SERVICE TEACHERS IN THE USE OF AUDIOVISUAL MATERIALS AND OF EFFECTS ON PUPILS. Torkelson, G.M.--Pennsylvania State University.	ED 003 513 OE-RR
S-142	PERSONALITY CORRELATES OF ACADEMIC ACHIEVEMENT AND PROFESSIONAL ATTITUDES OF STUDENTS IN TEACHER EDUCATION. Gragey, William J.--Illinois State University.	ED 003 697 OE-RR
S-022	TRANSFER EFFECTS OF DIRECTED CLASSROOM EXPERIENCE TO AN ELEMENTARY SCHOOL METHODS COURSE AND STUDENT TEACHING. Sister G. Best--Mary Grove College, Detroit.	ED 003 852 OE-RR

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APPENDIX F.

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